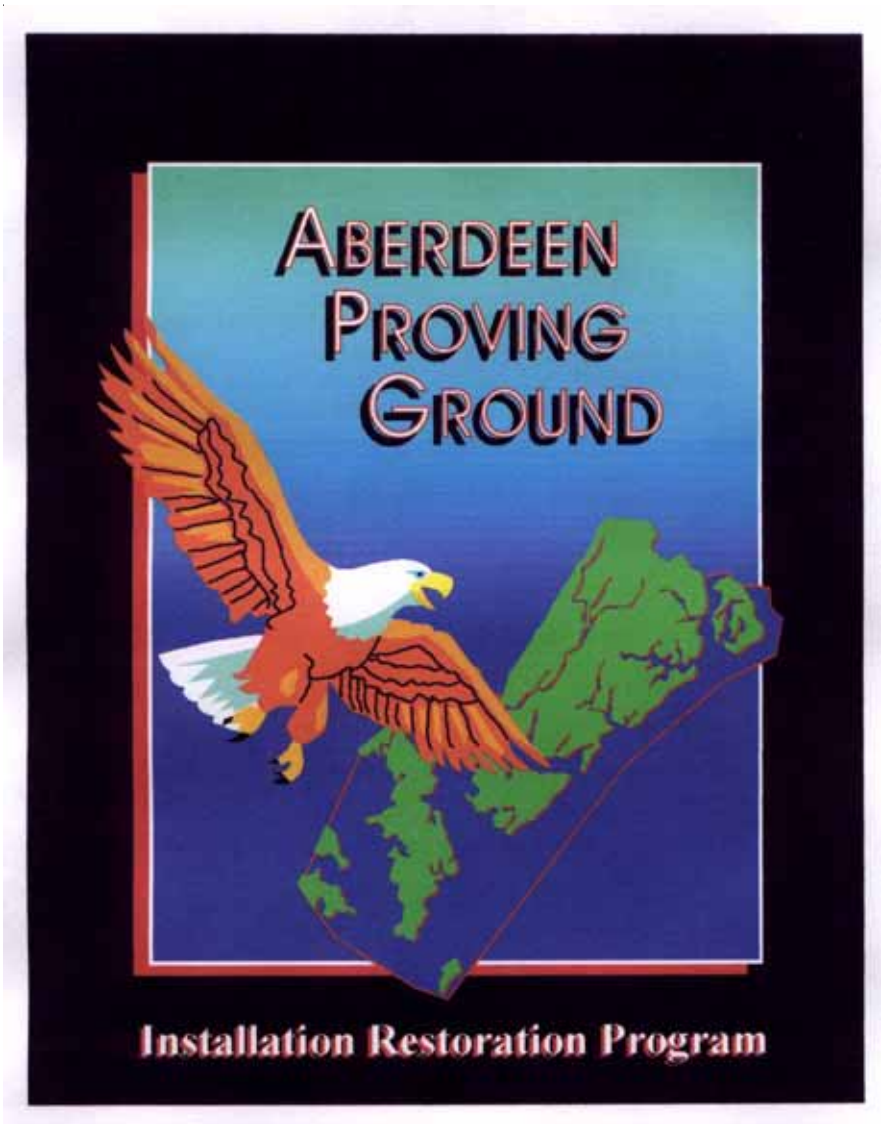
INSTALLATION ACTION PLAN
For
ABERDEEN PROVING GROUND



FY05 as of October 2004

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INSTALLATION ACTION PLAN
for
ABERDEEN PROVING GROUND

FY05 as of October 2004

Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year restoration program for an installation. The plan will define Installation Restoration Program (IRP) requirements and propose a comprehensive approach and associated costs to conduct future investigations and remedial actions at each Solid Waste Management Unit (SWMU) at the installation and other areas of concern.

In an effort to coordinate planning information between the IRP manager, AEC, installations, executing agencies, regulatory agencies, and the public, an IAP has been completed for the Aberdeen Proving Ground (APG). The IAP is used to track requirements, schedules and tentative budgets for all major Army installation restoration programs.

All site specific funding and schedule information has been prepared according to projected overall Army funding levels and is therefore subject to change during the document's annual review. Under current project funding, all remedies will be in place at the APG by the end of 2012.

The following people contributed to this Installation Action Plan:

Aberdeen Proving Ground

Engineering & Environment for AEC

U.S . Army Environmental Center

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Acronyms & Abbreviations

~	Approximately
AA	Aberdeen Area
AEC	(United States) Army Environmental Center
AEDB-R	Army Environmental Database – Restoration
AEHA	(United States) Army Environmental Hygiene Agency (replaced by CHPPM)
AMC	Army Materiel Command
AOC	Area of Concern
AOU	Accelerated Operable Unit
APG	Aberdeen Proving Ground
ARAR	Applicable or Relevant and Appropriate Requirements
ASG	Aerial Spray Grid
ARC	Used in the Installation Description
ARL	(US Army) Research Laboratory
ATC	(US Army) Aberdeen Test Center
ATSDR	Agency for Toxic Disease Substances and Registry
AWQC	Ambient Water Quality Criteria
BG&E	Baltimore Gas and Electric
BR	Bush River
BRDA	Burn Residue Disposal Area
BRRMDG	Bush River Radioactive Material Disposal Facility
Bldg	building
BRL	Ballistics Research laboratory
BTAG	Biological Technical Assistance Group
BX	botulism toxin
BZ	3-quinuclidinyl Benzilate, an incapacitating agent
CADDD	Chemical Agent Demil Disposal Defense
CC	Canal Creek
CC2	S-bis (2, 4, 6-trichlorphenylchlor) urea
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHPPM	(United States Army) Center for Health Promotion and Preventive Medicine
CI	Carroll Island
CISA	Carroll Island Study Area
CN	chloracetophenone
CNB	chloracetophenone; 10% mixture w/benzene & Carbon tetrachloride
CNS	chloracetophenone; 25% mixture w/chloroform & chloropicrin
COMAR	Code of Maryland Regulations
CRL	Certified Reporting Limit
CS	ortho-chlorobenzalmalononitrile
CSTA	Combat Systems Test Activity
CWM	Chemical Warfare Materiel
cy	cubic yard
DCE	dichloroethene
DD	Decision Document
DDD	dichloro-diphenyl-dichloroethane
DDDr	DDD plus breakdown products
DDE	dichloro-diphenyl-dichloroethene
DDT	dichoro-diphenyl-trichloroethane
DDTr	DDT plus breakdown products
DERA	Defense Environmental Restoration Account
DIMP	Diisoprpyl methylphosphonate

Acronyms & Abbreviations

DM	Adamsite
DMMP	dimethyl methyl phosphonate
DNAPL	Dense Non-Aqueous Phase Liquid
DPT	Direct Push Technology
DPW	Directorate of Public Works (now called Directorate of Installation Operations)
DRMO	Defense Reutilization and Marketing Office
DSERTS	Defense Site Environmental Restoration Tracking System (now called AEDB-R)
DSHE	Directorate of Safety, Health and Environment
EA	Edgewood Area
ECBC	(US Army) Edgewood Chemical Biological Center
ECD	Environmental Compliance Division
ECRD	Environmental Conservation and Restoration Division
EM	Electromagnetic
EMP	Electro Magnetic Pulse
EPA	Environmental Protection Agency
ER,A	Environmental Restoration, Army (formally called DERA)
ESD	Explanation of Significant Difference
FEMA	Federal Emergency Management Agency
FFA	Federal Facilities Agreement
FFSRA	Federal Facility Site Remediation Agreement
FFS	Focused Feasibility Study
FS	Feasibility Study
ft	foot
FY	Fiscal Year
GA	dimethylaminocyanophosphoric acid
GAC	Granular Activated Carbon
GATE	German Ammunition Train Explosion
GB	isopropylmethylphosphonofluoridate
GD	Soman
GQ	Graces Quarters
GQSA	Graces Quarters Study Area
GW	Groundwater
GWTF	Groundwater Treatment Facility
HC	Hexachloroethane, a smoke mixture
HD	mustard
HE	High explosive
HEL	Human Engineering Laboratory
HH	Human Health
HHRA	Human Health Risk Assessment
HMF	Hazardous Material Facility
HP	a WP and mustard mixture
HRS	Hazard Ranking System
IDM	Investigation-derived material
IMPA	isoprophyl methyl phosphoric acid
IAP	Installation Action Plan
IRA	Interim Remedial Action
IRP	Installation Restoration Program
ITR	Independent Technical Review
K	thousand
KD	Known Distance

Acronyms & Abbreviations

LC	Lauderick Creek
LTM	Long Term Monitoring
LTO	Long Term Operation
M	million
MCL	Maximum Contaminant Level
MDE	Maryland Department of the Environment
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MLF	Michaelsville Landfill
MNA	Monitored Natural Attenuation
MOU	Memorandum of Understanding
MPA	methyl phosphoric acid
MRICD	(US Army) Medical Research Institute of Chemical Defense
MTBE	methyl tert butyl ether (gasoline additive)
NCP	National Contingency Plan
NE	Not Evaluated
NFA	No Further Action
NM	designation for a powdered elemental sulfur mixture
NPL	National Priorities List
NRC	Nuclear Regulatory Agency
NS	Nike Site
O&M	Operation & Maintenance
OA	Other Aberdeen
OB/OD	Open Burning/Open Detonation
OBRRD	Old Bush River Road Dump
OC&S	(US Army) Ordnance Center and School
OEA	Other Edgewood Areas
OF	O-Field
OU	Operable Unit
PA	Preliminary Assessment
PAAF	Phillips Army Airfield
PAH	Polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
pCi/g	pico Curies per gram
PETN	Pentaerythrite Tetranitrate
POL	Petroleum, Oil & Lubricants
PP	Proposed Plan
ppb	parts per billion
ppm	parts per million
QA/QC	Quality Assurance/Quality Control
R&D	Research and Development
RA	Remedial Action
RA(C)	Remedial Action – Construction
RA(O)	Remedial Action – Operation
RAB	Restoration Advisory Board
RAD	Radiological
RBC	Risk-Based Concentration
RC	Response Complete
RCRA	Resource Conservation and Recovery Act

Acronyms & Abbreviations

RD	Remedial Design
RDX	Royal Demolition Explosive
REM	Removal
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
RR	Railroad
RRSE	Relative Risk Site Evaluation
SARA	Superfund Amendments and Reauthorization Act
SBCCOM	(US Army) Soldier & Biological Chemical Command
SCC	Superfund Citizens Coalition
SI	Site Inspection
STB	Super Tropical Bleach
SVOC	Semi-Volatile Organic Compounds
SWMU	Solid Waste Management Unit
TAG	Technical Assistance Grant
TAL	Target Analyte List
TCE	Trichloroethylene
TCL	Target Compound List
TCPU	trichlorophenylurea (clothing impregnation degradation product)
TECA	1, 1, 2, 2-Tetrachloroethane
TGY	Toxic Gas Yard
TI	Technical Impracticability
TNT	trinitrotoluene
TPH	Total Petroleum Hydrocarbons
TRC	Technical Review Committee
TRV	Toxicity Reference Values
TVOC	Total Volatile Organic Compounds
ug/L	micrograms per liter
US	United States
USGS	US Geological Survey
USACE	US Army Corps of Engineers
USATHMA	(US Army) Toxic and Hazardous Material Agency (replaced by AEC)
UST	Underground Storage Tank
USTEU	(US Army) Technical Escort Unit
UXO	Unexploded Ordnance
VOC	Volatile Organic Compounds
VX	O-ethyl-S-(2-diisopropylaminoethyl) methylphosphonothioate
WB	Western Boundary
WBSA	Western Boundary Study Area
WP	White Phosphorus
WRMDF	Westwood Radioactive Material Disposal Facility
WSA	Westwood Study Area
WW	Westwood
WWI	World War One
WWII	World War Two
XRF	X-Ray Fluorescence

Summary

STATUS

NPL Installation: Edgewood Area HRS Score 53.57
Michaelsville Landfill HRS Score 31.45

NUMBER OF AEDB-R SITES:

252 AEDB-R Sites
86 Open Sites (receiving funding)
17 Remedy in Place with LTM or RA(O) Only
149 Response Complete Sites (not receiving funding)

MMRP Sites

13

DIFFERENT AEDB-R SITE TYPES:

16	Burn Area	4	Contaminated Buildings
5	Contaminated Soil Piles	4	Contaminated Fill
19	Contaminated Groundwater	7	Contaminated Sediments
31	Surface Disposal Area	13	Chemical Disposal
3	Drainage Ditch	20	Disposal Pit/ Dry Well
1	Leach Field	3	Firing Range
23	Industrial Discharge	4	Incinerator
22	Landfill	4	Maintenance Yard
1	Washrack	26	Storage Area
2	Surface Impoundment/Lagoon	2	Small Arms Range
4	Spill Site Area	3	Sewage Treatment Plant
1	Underground Tank Farm	11	Underground Storage Tank
3	Water Line	1	Radioactive Waste Area
4	Waste Treatment Plant	3	Explosive Ordnance Disposal
9	Unexploded Munitions/Ordnance	2	Other

CONTAMINANTS OF CONCERN:

Heavy Metals, Explosives, Solvents, Pesticides, Propellants, VOCs, POL, Chemical Agents

MEDIA OF CONCERN:

Groundwater, Soil, Surface Water, Sediment

COMPLETED REM/IRA/RA:

For a Complete List see the REM/IRA/RA section

CURRENT IRP PHASES:

RI/FS at 22 sites	RD at 15 sites	RA at 5 sites
RA(O) at 7 sites	LTM at 13 sites	

PROJECTED IRP PHASES:

RI/FS at 29 sites	IRA at 3 sites	RD at 55 sites
RA at 87 sites	RA(O) at 21 sites	LTM at 23 sites

IDENTIFIED POSSIBLE REM/IRA/RA:

IRA at EAOE26, 29, 42
RA at AAWB02, 04, AAOA01, 02, 08, 12, EAOE04, 08, 12, 16, 19, 22, 23, 26, 27, 28, 29, 37, 42, 50, 51, 52, 53, 54, EABR03-B, 11-A, 11-B, 11-C, 11-F, 11-I, 15-A, 15-B, 15-D, 18-F, EALC09-F, 13-D, EAGQ02-D, EAJF01, EACC1A-A, 1A-B, 1D, 1F-A, 1F-B, 1G-A, 1G-B, 1H-A, 1H-F, 1H-G, 1J, 2F, 2H-B, 3C, 3K-A, 3K-B, 4A-B, 5A, 5B, EACF01, 02, 04, EAWW02-A, 02-D, 02-E, 06, 10-A, 10-B, 14-B, 14-C, 21-B, 21-D, 21-E

FUNDING:

Prior Year Funds	$ 471,318,900
Future Funds (FY05+)	$ 260,413,000
Total	$ 731,731,900

DURATION:

IRP Inception	1976
RA Construction Completion	2012
IRP Completion	2034

Installation Information

LOCATION:

Aberdeen Proving Ground (APG) lies in Harford and Baltimore Counties, Maryland near the head of the Chesapeake Bay. The Installation (Aberdeen Area (AA) and Edgewood Area (EA)) comprises approximately 72,500 acres, much of which is underwater or marshy, wooded terrain. The APG-AA portion of the Installation, located in the southeastern part of Harford County, is three miles southeast of the City of Aberdeen. Firing ranges, impact areas, vehicle test tracks, and other test facilities extend southwest to Bush River and include Spesutie Island and Pooles Island. Of the 72,500 land and water acres, 17,000 acres of land are within the AA. The APG-EA (formerly Edgewood Arsenal) lies adjacent to the towns of Edgewood and Joppatowne in the southern part of Harford County. Test areas of the EA include: (1) Gunpowder Neck, extending south into the Chesapeake Bay between Bush River and Gunpowder River, (2) Graces Quarters, a peninsula between Gunpowder River and Saltpeter Creek, and (3) Carroll Island, a peninsula between Saltpeter Creek and the Chesapeake Bay. The Graces Quarters and Carroll Island areas lie across the Gunpowder River in the southeastern corner of Baltimore County. The APG-EA comprises 13,000 land acres of the 72,500 land and water acres of the Installation.

IRP EXECUTING AGENCY:

- Investigation Phase Executing Agency: U.S. Army Garrison, APG, DSHE, ECRD
- Remedial Design/Action Phase Executing Agency: U.S. Army Garrison, APG, DSHE, ECRD

REGULATORY PARTICIPATION:

FEDERAL: U.S. Environmental Protection Agency (EPA), Region III
STATE: State of Maryland Department of the Environment (MDE)

REGULATORY STATUS:

- Resource Conservation and Recovery Act (RCRA) Corrective Action Permit issued September 1986 and renewed September 1988, for regulation of APG Solid Waste Management Units (SWMUs)
- National Priorities List (NPL) Installation close to high population densities with potential for off-post contamination
- Michaelsville Landfill listed on NPL October 4, 1989 and entire APG-EA listed on NPL February 21, 1990
- Interagency Agreement with EPA, Region III, March 1990

Installation Description

Aberdeen Proving Ground (APG) is an active installation, with 30 offices and directorates, and approximately 60 tenant activities or liaison offices. APG's parent organization is the US Army Installation Management Agency. APG is primarily responsible for planning and testing of weapons systems, rocket and missile systems, munitions, vehicles, and various equipment. APG consists of two functional areas: the Aberdeen Area (AA) and the Edgewood Area (EA).

The APG-AA was established as the Ordnance Proving Ground in December 1917 and became a permanent military post, designated APG, in January 1919. Testing of ammunition and materiel began in January 1918. The original area comprised 29, 162 upland acres and 34,600 acres of water. Ordnance officer training began in 1919 with the activation of the Ordnance School of Application. Prior to World War II, activities at APG were characterized by intense research and development, and large-scale testing of a wide variety of munitions, weapons, and materiel. In 1940, enlisted specialist training was consolidated with the officers' training. On July 1, 1940, the Ordnance School became operational.

From 1939 to 1942, du ring the World War II build-up, the Army acquired approximately 6,800 acres adjacent to the reservation and purchased an additional 244 acres near Churchville for automotive testing. Spesutie Island, providing an additional 1,834 acres, was added to the APG-AA in 1945.

During the Korean and Vietnam conflicts, smaller-scale increases in munitions and materiel development and testing activities at APG were performed. During the Korean conflict, the Ordnance Training Command was established and the Ordnance School was placed under this Command. In 1962, the Ordnance Training Command was discontinued with the advent of the Army Materiel Command (AMC).

In October 1917, by Presidential Proclamation, land southwest of the APG-AA was appropriated for use as a military reservation, known as the Gunpowder Reservation. In May 1918, this reservation was officially designated as Edgewood Arsenal. Edgewood Arsenal remained an Ordnance Installation until July 1, 1918, when it was transferred to the newly-created Chemical Warfare Service. During the 1920s, the Chemical Warfare School was established. The fort Hoyle Military Reservation became part of Edgewood Arsenal in 1940, adding 5,000 acres to the APG-EA. In 1942, the Installation was designated as the Chemical Warfare Center, and in 1945, the name of the Installation was changed to Army Chemical Center. In 1962, with the organization of AMC, the Army Chemical Center once again became Edgewood Arsenal, and the US Army Chemical-Biological-Radiological Agency was organized. On July 1, 1971, Edgewood Arsenal became a part of APG.

Historically, all of the military chemical warfare research, development, and related activities at APG have occurred in the APG-EA. Since 1917, the APG-EA has been the site of laboratory research, field testing of chemical materiel and munitions, pilot-scale manufacturing, production-scale chemical agent manufacturing (during World War II), and related test and disposal operations. The APG-EA has also been a center for the storage of chemical warfare materiel and a major receiving center for waste handling operations, including low-level radiological waste.

Currently, APG supports approximately 60 tenant activities. Major tenants include: US Army Edgewood Chemical Biological Center (ECBC), US Army Aberdeen Test Center (ATC), US Army Research Laboratory (ARL), US Army Center for Health Promotion and Preventive Medicine (CHPPM), US Army Developmental Test Command, Northeast Region Civilian Personnel Operations Center, US Research, Development and Engineering Command, US Army Ordnance Center and Schools (OC&S), US Army Medical Research Institute of Chemical Defense (MRICD), and US Army Environmental Center (AEC). ATC, located in the APG-AA, conducts plans and development tests, and production tests of weapons and weapons systems, rockets and missile systems, munitions, components, survey and target acquisition equipment, armor plate, combat, and general- and special-purpose vehicles. ATC also provides advice and guidance on test and evaluation materials to material developers, material producers, etc. ARL, which is headquartered in the APG-AA, primarily performs research in ballistics and conducts human factors engineering and robotics research and development. CHPPM and MRICD are headquartered in the APG-EA. CHPPM is vital in supporting the army's total preventive medicine program and encompasses essentially all occupational and environmental health disciplines. MRICD conducts research on medical protection against chemical and biological weapons. AEC, also headquartered in the

Installation Description

APG-EA, is a major focal point in the program management and support efforts of the Army-wide environmental program. AEC's principal focus is directed toward supporting the installation in achieving and maintaining environmental compliance. OC&S headquarters are located in the APG-AA. OC&S has long been the largest training center for military and civilian personnel in the field of material, maintenance, and integrated materiel management of combat fire power and ground mobility materials in the US.

Since 1976, APG has been participating in the Department of Defense's Installation Restoration Program (IRP) in order to identify the locations and contents of past hazardous waste disposal sites having a detrimental environmental impact and control the migration of hazardous constituents from these sites. The Department of Defense's IRP closely parallels the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)/Superfund Amendments and Reauthorization Act (SARA) program. Prior to 1983, the key agency in executing IRP actions at APG was AEC (THAMA). In 1983, APG assumed total management responsibility of IRP projects. During 1984-85, APG was evaluated as a potential CERCLA (Superfund) National Priorities List (NPL) site. In April 1985, EPA published a Federal Register notice which proposed all of the APG-EA and Michaelsville Landfill at the APG-AA for inclusion on the NPL. For purposes of the Hazard Ranking System (HRS) scoring, APG was separated into the AA and the EA due to the large acreage involved and the many waste disposal considerations. Prior to NPL placement, IRP study and remediation activities of past releases from Solid Waste Management Units (SWMUs) at APG were regulated through a Resource Conservation and Recovery Act (RCRA) Corrective Action Permit issued in September 1986, and renewed in September 1988.

Michaelsville Landfill was listed on the NPL with a HRS score of 31.45 on October 4, 1989 due to groundwater contamination beneath the landfill. The entire APG-EA was listed on the NPL with a HRS score of 53.57 on February 21, 1990. In March 1990, a Federal Facilities Agreement (FFA) signed by the U.S. EPA Region III and the U.S. Army established a procedural framework and schedule for compliance with CERCLA, National Contingency Plan (NCP), RCRA, and other applicable federal and state laws and regulations. This Agreement requires thorough investigations and appropriate responses to environmental impacts deemed necessary to protect public health, welfare, and the environment.

Although the State of Maryland is not a formal party to the FFA, the State has actively participated in all aspects of the APG IRP effort. APG has ensured that State representatives have adequate opportunity to participate in the planning and selection of response actions including, but not limited to, review of all applicable data as it becomes available, the development of studies and reports, and review of and comment on response action proposals and activities prior to the initiation of any action.

Meetings are regularly conducted with the EPA and the Maryland Department of the Environment (MDE) to discuss targets of opportunity and to negotiate interim remedial actions, removal actions, accelerated operable units (AOUs), and overall cleanup plans. In March 1993, a change in APG's IRP approach concept was proposed to the regulatory agencies to expedite remedial solutions. Program efforts focus on a macro solution approach for attaining remedial solutions rather than performing the CERCLA process for each source area individually. Initial efforts under this approach were geared toward redefining the study area boundaries according to hydrogeological units, investigating and delineating the boundaries of all contaminated groundwater plumes at APG, and implementing measures to prevent the migration of the contaminated groundwater plumes off-post. Site remedial investigation work will be prioritized based on proximity to the installation boundaries and the degree of risk (associated with the groundwater contamination and sources) to human health and the environment. As a result, additional accelerated remedial actions are quickly identified and work at low risk areas can be deferred. APG continues to evaluate additional AOUs and targets of opportunity for potential early response action at selected sites, some of which are geared toward a macro solution. Further targets of opportunity will be identified during the Remedial Investigation/Feasibility Study (RI/FS) process for each study area, and prompt measures to remediate these areas will occur at that time. In addition, APG is considering implementation of proactive measures such as the installation of groundwater monitoring wells along the APG-EA and APG-AA installation boundaries to detect/monitor any potential for off-post migration of contaminants.

Interim remedial actions and removal actions will be evaluated and pursued to the maximum extent possible;

however, CERCLA still requires studies/investigations to be performed. Investigations continue, in conjunction with interim remediation projects and removal actions, at APG as necessary to delineate the SWMUs identified within the 1989 and 1990 RRA Facility Assessments. Given the historical activities conducted at APG, huge land area, and the lack of ample, detailed historical records, additional SWMUs may still be discovered over the next several years, expanding the scope of this IRP.

From October 1990 to October 1994, an APG Technical Review Committee (TRC) met quarterly to keep the local citizenry informed as to the status of the APG environmental remediation actions planned or conducted and to facilitate public review and comment on the proposed actions with respect to releases or threatened releases of hazardous substances. In FY93, the APG Superfund Citizens Coalition (APGSCC), a local community group, received a $100,000 Technical Assistance Grant (TAG) from the EPA to hire technical consultants to assist them in reviewing and interpreting the APG IRP clean-up program documents, understanding and commenting on remediation plans being proposed to cleanup contaminated sites, and providing recommendations for the community. This grant helped foster local community involvement in the $50,000 grants providing continuing funds for technical experts to help citizens review and comment on technical documents. The APGSCC continued to receive TAG funding through FY03, at which time the citizens group chose not to pursue additional funding.

During 1994, APG identified the need to encourage greater opportunities for the affected communities and representatives of Government agencies to meet and exchange information, review progress, and participate in dialogue with the decision makers about the APG cleanup program. As a result, APG's TRC formally transitioned in January 1995, to a Restoration Advisory Board (RAB), The RAB is made up of approximately 20 community members and regulatory/governmental members, and is co-chaired by representatives from the Army and the community. A formal RAB Charter was established in January 1996. The RAB holds monthly meetings open to the public. The RAB promotes community awareness and obtains effective community review and comment on the environmental cleanup and restoration actions of the APG IRP. The RAB serves as the key mechanism to disseminate information regarding the IRP, and ensures that various opinions about environmental restoration from the diverse interests within the community are heard.

An IRP Action Plan is prepared annually and is an integral part of the IRP project management and implementation. APG uses the action plan as a comprehensive planning tool to illustrate the future direction and goals of the IRP, to identify the strategies for attaining these goals, and to justify the utilization of these strategies. AEC will use this Action Plan to monitor the requirements and schedules for the APG IRP and make decisions concerning tentative budgets for the APG IRP.

Contamination Assessment

Past chemical warfare agent and hazardous material disposal practices and operations at APG yielded a number of SWMUs from which hazardous wastes or constituents have migrated resulting in environmental contamination, in particular groundwater contamination, that require US Army cleanup actions. These SWMUs include burn areas, salvage yards, dumps/surface disposal sites, landfills, contaminated buildings, industrial discharge, underground storage tanks (USTs), contaminated groundwater, and storage areas.

As part of the site assessment stage of the IRP, an initial Records Search Study was conducted in July 1976 by AEC (USATHAMA), the key APG IRP executing agency until 1983. This records study was conducted to estimate possible contamination by chemical, biological, and radiological material and assess the possibility of the contaminants migrating past the boundaries of the Installation. Large sections of the APG-EA were found to be contaminated or potentially contaminated by chemical munitions, manufacturing wastes, and Chemical Warfare Material (CWM). Available water quality records indicated that chemical contamination from the Canal Creek drainage area and from O-Field was migrating into the waters surrounding the APG-EA. This records study identified eight areas of contamination and recommended three areas for preliminary surveys and two for further monitoring.

An additional Installation Assessment of the APG-AA and an Environmental Survey of the APG-EA were conducted by AEC (USATHAMA) from 1976 through 1983 to confirm the findings of the 1976 Records Research Study. These environmental investigations were initiated to evaluate the inorganic and organic constituents present in the groundwater, soil, sediment, and surface water. Probable sources of the groundwater, surface waster, soil, and sediment contaminants, contamination migration in the groundwater, and possible reactions affecting the organic contaminants were identified. The studies verified contamination or potential contamination by chemical munitions, manufacturing wastes, and CWM in Westwood, Canal Creek Drainage Area, Gunpowder Neck Test Areas, Carroll Island, Graces Quarters, Nike Site, and Lauderick Creek; migration of chemical contamination into the waters surrounding the APG-EA at Canal Creek Drainage Area, Old O-Field, and J-Field; and the potential for chemical contamination in the water surrounding the APG-EA at Carroll Island, Graces Quarters, and the remaining Gunpowder Neck Fields.

Regulatory oversight of the investigations and remedial work at APG from 1984 to 1990 was through RCRA and a RCRA corrective action permit issued to APG by EPA Region III in 1986 and 1988 Under the RCRA Corrective Action Permit, APG initiated detailed groundwater investigations (Hydrogeologic Assessments or RCRA Facility Investigations) from 1985 to 1992 at Carroll Island, Graces Quarters, Canal Creek, J-Field, O-Field, Michaelsville Landfill, Phillips Army Air Landfill, and the Nike Site. These investigations were performed under interagency agreements with the US Geological Survey (USGS) and the US Army Corps of Engineers (USACE) in order to further characterize all contaminant releases and movements from the SWMUs. These environmental investigations indicated that high levels of hydrocarbons were detected in the groundwater in seven study areas. White phosphorus has been detected in the sediments and surface waters in Canal Creek. O-Field, contaminated with large quantities of chemical and explosive materials, is a source of contaminant migration. Additionally, arsenic has been detected in surface waters. Groundwater has been contaminated with volatile organics. While no off-post migration was reported from any of the study area investigations, small amounts of surface water contamination (volatile organic compounds (VOCs)) were identified in on-post tributaries to the Chesapeake Bay.

In addition, RCRA Facility Assessments of the APG-EA and APG-AA were completed in 1989 and 1990, respectively, and identified over 300 SWMUs. With the signing in March 1990 of the FFA between the EPA and US Army, these SWMUs were combined into 13 geographical areas of concern (i.e. study areas), in which IRP efforts would be focused. Figure 1 illustrates the locations of the thirteen study areas within APG. Nine of the study areas are located in the APG-EA; Bush River, Canal Creek, Carroll Island, Graces Quarters, J-Field, Lauderick Creek, O-Field, Other Edgewood Areas, and Westwood; and four are located in the APG-AA: Michaelsville Landfill, Other Aberdeen Areas, Phillips Army Airfield Landfill, and the White Phosphorus Disposal Site. Under the FFA, the initial environmental studies conducted at these study areas were revised into RI/FS efforts under CERCLA/SARA.

Contamination Assessment

In 1992, the Fire Training Area was separated from the Other Aberdeen Areas SWMUs to become the fourteenth study area under the APG IRP. In 1993, APG combined the separate CERLA remedial efforts for the Western Boundary, Fire Training Area, and Phillips Army Airfield Landfill sites into one effort, designating the new study area as the Western Boundary Study Area. Since no justified rationale for the boundaries established around these sites existed and the sites share the same hydrogeology, APG combined these sites into one composite area of geologic influence.

The US AEC Defense Sites Environmental Restoration Tracking System (DSERTS) identified the 13 study areas at APG as Bush River (EABR03 through EABR36), Canal Creek (EACC1A through EACC7), Carroll Island (E#A100 through EA108), Graces Quarters (EAGQ00 through EAGQ03), J-Field (EAJF00 through EAJF14), Lauderick Creek (EALC00 through EALC33, EANS00 and EANS01), O-Field (EAOF01 through EAOF04), Other Edgewood Areas (EAOE04 through EAOE54), and Westwood (EAWW00 through EAWW21) for the APG-EA and Michaelsville Landfill (AAML01 and AAML02), Other Aberdeen Areas (AAOA01 through AAOA14, Western Boundary Area (AAWB01 through AAWB04), and White Phosphorus Disposal Site (AAWP01) for the APG-AA. The clusters, operable units, and/or subdivided areas within each of the study areas were assigned individual DSERTS numbers. The APG IRP has a total of 252 sites entered into DSERTS (231 in the APG-EA, 20 in the APG-AA, and one site which addressed the installation shorelines prior to FY97). The DSERTS database is now integrated with cost-to-complete tracking under the Army Environmental Database – Restoration (AEBB-R).

Due to the large number of SWMUs at APG, IR RI/FS efforts have been conducted on a broader scope. Rather than initiating RI/FS efforts at each SWMU or DSERTS site, the IRP focused RI/FS efforts on a study area-by-study area, cluster-by-cluster, operable unit-by-operable unit basis. However, the IRP still conducts accelerated remedial actions at certain SWMUs (or DSERTS sites) to avoid serious delays in implementing a remedial response to a release or threatened release of hazardous substances or pollutants.

APG published a preliminary Baseline Risk Assessment for eight selected areas and sites in January 1991 to satisfy risk concerns expressed in the FFA between the US Army and the EPA. These six study areas and two sites were selected because of known or suspected past chemical contamination, and existing environmental sampling data. The study areas of concern were O-Field, J-Field, Canal Creek, Carroll Island, Graces Quarters, and Michaelsville Landfill. The sits of concern were the Nike Site and Phillips Army Airfield Landfill. The IRP considered these risk assessments to be preliminary estimates of risk due to the limited availability of data. The risk assessments identified the possible chemicals, exposure pathways, and populations of greatest potential concern for each area. Risk assessment work continues to occur in conjunction with RI/FS work for each study area. In addition, APG completed the Gunpowder River and Terrestrial Ecological Assessments in support of I/FS work occurring at APG. The purpose of the Gunpowder River Study was to characterize the potential impacts of the past APG-EA activities as a whole on the Gunpowder River ecosystem. The Terrestrial Ecological Assessments Project focused on collection and analysis of chemical and biological data primarily from terrestrial and freshwater systems at eight selected study areas. This data supported each study area's RI work by providing specific data necessary to perform each study area's risk assessment. In addition, APG completed a Background/Reference Sampling Project that generated off-site reference or background data (i.e., surface water, sediments, soil, and groundwater) for comparison with RI data during individual APG study area risk assessments.

The APG IRP published a final Generic RI/FS Work Plan for Bush River, Lauderick Creek, Other Edgewood Areas, and Westwood Study Areas in June 1992. The Generic RI/FS Work Plan describes the RI/FS, associated tasks, and general plans applicable to all of at least 160 SWMUs located in any of the four study areas. The Generic Work Plan groups the SWMUs by location into 53 clusters. The individual study area maps located in Section B depict the location of these clusters within the four APG-EA study areas. The numbers assigned to each cluster refer to the cluster's priority within the context of the IRP at the four study areas. Priorities are based on proximity to human and ecological receptors, the installation boundaries, etc. Detailed RI work plans have been developed and implemented for each cluster, constituting addenda to the generic RI/FS work plan. Each detailed RI Work Plan addressed specifics for RI studies at each cluster within the above

four study areas.

Since March 1990, APG initiated or finalized numerous studies, assessments, and investigations for each of the identified study areas as part of the remedial compliance process stipulated by the FFA and CERCLA. In conjunction with these environmental studies, IRP efforts also focused on the initiation of remedial and removal actions at the study areas. To date, 109 removal actions have been completed (not including the removal of 18 USTs using non-Defense Environmental Restoration Account (DERA) funds). These actions include the removal and incineration of soil contaminated with PCBs and pesticides, excavation of disposal pits, installation of warning signs, fences and erosion controls, and the removal of contaminated surface material. A total of 79 removal actions are underway, or completed. Over 40 RI/FS and 50 Remedial Action/Removal Action work plans have been drafted or finalized since the inception of the IRP. To assist in the RI/FS projects, the IRP is performing hydropunch sampling, an economical and quick screening process, to efficiently and quickly define the extent of groundwater contamination in the APG-EA and APG-AA without having to install expensive groundwater monitoring wells. In addition, passive soil gas surveys are being conducted to assist in determining locations for groundwater monitoring wells and soil sample locations. Section B discusses these investigations in greater detail.

Records of Decision (RODs) for two sites (AAWP01 – White Phosphorus Underwater Munitions Burial Area No Further Action and EAOF01-Old O-Field OU1 Groundwater Extraction and treatment) were issued in FY91, and for a third site (AAML01-Michaelsville Landfill Cap and Cover Installation) in FY92. In FY95, RODs for two sites (EAOF02 – Old O-Field Source Area OU2 Permeable Infiltration Unit (PIU) Installation and EACC1H-E – Building 103 Dump OU1 Cap Installation) wee published. APG issued RODs for four OUs in FY96: EACH1L-A – Interim Remedial Action at the Building 503 Smoke Pilot Plant Burn Sites Soil OU; EACI01-A,C; EACI02-A, C; EA03; EACI04-B, C, D; EA05-D, E; EA06-B;EACI08 – Interim Remedial Action at Carroll Island OUA (Disposal Sites); EAJF05 & EAJF05-A – Remedial Action at J-Field Soil OU; and EANS01-A-K – Remedial Action at Cluster 1, Former Nike Missile Site. In FY97, APG published three RODs: AAML02 – Michaelsville Landfill Groundwater OU 2; EAOF03 – O-Field Watson Creek OU3 (Limitied Action for Sediment and Surface Water); and EACC3N – Beach Point Groundwater OU. No RODs were published in FY98. In early FY99, RODs for two sites (EACC4A – Interim Remedial Action at the Canal Creek Groundwater OU and EABR03-A – Old Bush River Road Dump Soil Cover Installation) were published. A final ROD was published in FY2000 for the Final Remedial Action for the East Branch Canal Creek Area Plume in APG-EA, and for OU1 of the Western Boundary Study Area. In 2001, a final ROD was published for the Carroll Island and Graces Quarters CWM and Hazardous Substances (OUB), as well as the final ROD for the J-Field Study Area (all sites except the Burn Pits Soil OU previously addressed). In 2003, a ROD was published for remedial action at Other Lauderick Creek Clusters, which includes the Cluster 5 Concrete Slab Test Area at which remediation is underway.

A Five-Year remedy review report for the White Phosphorus Site was completed in FY97, and a Five-Year Review for the O-Field Study Area was completed in FY99. The Five-Year Reviews for both the APG-EA and APG-AA were published in FY03.

Results of ongoing AAWB01 (Western Boundary Area) RI/FS activities in early FY93 confirmed off-post trichloroet-hylene (TCE) contamination of two Harford County drinking water wells at Perryman. In April 1993, the US Army, in coordination with the EPA, State of Maryland, and Harford County officials, began construction of a granular activated carbon (GAC) treatment system to remove the TCE from the two wells. The system began operation in June 1993. IN FY99, work began on developing an internal draft Memorandum of Understanding (MOU) between APG and Harford County for relocating and maintaining the GA water treatment plant at Perryman. The MOU was completed in FY00, and relocation and transfer of the plant to Harford County was completed.

A cap and cover system was installed over AAML01 (Michaelsville Landfill) in August 1994 as an interim remedial action. Interim remedial action at EAOF01 (Old O-Field Groundwater-OU1), involving extraction of contaminated groundwater and treatment using chemical precipitation to remove metals and air stripping, ultraviolet (UV)-oxidation, and carbon adsorption to remove organics, was initiated in April 1995. Installation of the Perme-

able Infiltration Unit (PIU) over Old O-Field Source Area OU2 (EAOF02) was completed August 1998. Interim remedial action at the Building 103 Dump Site (EACC1H-E) was initiated in May 1997 and completed in 1999. Interim remedial action at the Building 503 Burn Site (EACC1L-A) was initiated in September 1997 and completed by February 1998 to include excavation of soil/ash from burn sites and transporting the soil/ash to Building 103 Dump Site. Abandonment of the Sanitary Sewer System at the Nike Site (EANS01-C) was completed in November 1997. Remedial action of various disposal sites at Carroll Island Operable Unit A (EACI01-A, C; EA02-A, C; EAI03; EA04-B, C, D; E05-D, E; E06-B; EAC08) was initiated in October 1997 and completed in December 1999. Remedial action at the J-Field Toxic Burn Pits Soil OU was initiated in May 1998 to include excavation of contaminated soil, and was completed in November 2001. Installation of a cap over the Southwest Landfill (EANS01-D) at Cluster 1 was completed in August 1998. The J-Field shoreline stabilization activities were initiated in October 1998 and completed in February 1999.

In addition to APG's investigations, the Agency for Toxic Substances and Disease Registry (ATSDR) prepared a Preliminary Public Health Assessment of APG in December 1989. The preliminary assessment discussed available information about site-related hazardous substances and evaluated whether exposure to them in the past, present, or future might cause adverse health effects in members of the community. ATSDR held public availability meetings on October 26, 27, and 28, 1992 to gather the concerns of the community. On June 9, 1993, ATSDR published a public health assessment of AAOA01-AAOA14 (Other Aberdeen Areas) and AAML01/AAML02 (Michaelsville Landfill) for review and comment by the general public. Because of the complexity of environmental issues at APG, the various missions of APG-AA an APG-EA, and the physical separation between areas at APG, this assessment focused only on APG-AA issues. In the APG-AA public health assessment, ATSDR recommended further sampling and analysis to characterize the extent of contamination at priority areas. Priority sampling areas include those accessible to workers and to the public. Until cleanup begins, ATSDR recommended the placement of additional access restrictions on areas known to be contaminated, such as the OA01 (Old Dump at Swan Creek). ATSDR also recommended the development of a program to obtain information about potential contamination in the game population.

On September 30, 1993, ATSDR published a public health assessment of the APG-EA for review and comment by the general public. Although contamination in specific areas of the APG-EA is extensive, ATSDR considers the APG-EA to pose an indeterminate public health hazard. The available data do not indicate that humans are or have been exposed to levels of contamination expected to cause adverse health effects. ATSR recommended further sampling and analysis to fully characterize the extent of contamination around specific areas of the APG-EA; in particular, those areas ordinarily accessible to workers and the public. No evidence exists to warrant alteration of the current hunting practices at the APG-EA, but ATSDR recommended the immediate development of a comprehensive plan to obtain information about potential contamination of fish and game.

In January 2000, an Independent Technical Review (ITR) was conducted at APG. General ITR recommendations have been implemented including the establishment of procedures to aid in ARAR identification, ensuring legal review of projects at the earliest stage, the development of conceptual site models for all sites, and the development of an overall groundwater decision document. Site-specific ITR recommendations have also been addressed.

PREVIOUS STUDIES

Title	DATE
APG Overall Area Natural Resources Trustees	No Date
Installation Assessment of APG, Report No. 101, Vol. I, APG, MD	Sep-76
Installation Assessment of APG, Report No. 101, Vol. II, APG, MD	Sep-76
Installation Assessment of APG, Report # 301	Feb-81
Environmental Survey Of Edgewood Area	Jan-83
APG Overall Area Public Participation	1986 – Present
RCRA Hazardous Waste Management Permit, #MD 3-21-002-1355	30-Oct-86
RCRA Hazardous Waste Management Permit, #MD 3-21-002-1355, MOD I	26-Sep-88
RCRA Facility Assessment – Edgewood Area Report #39-26-0490-90	Nov-89
APG Overall Miscellaneous Correspondence Vol. I	1990 – Present
Federal Facility Agreement Between EPA Region III & U.S. Army	27-Mar-90
RCRA Hazardous Waste Management Permit, #MD 3-21-002-1355, MOD II	Jul-90
RCRA, Other Aberdeen Areas, Vol I–Main Text, Parts I-VIII	Sep-90
RCRA, Other Aberdeen Areas, Vol. II, Parts IX – XV	Sep-90
RCRA, Other Aberdeen Areas, Vol. III, Parts XVI – XXV	Sep-90
Non-Releasable Baseline Risk Assessment of 8 Selected Study Areas, Vol. I	22-Jan-91
Non-Releasable Baseline Risk Assessment of 8 Selected Study Areas, Vol. II	22-Jan-91
Non-Releasable Baseline Risk Assessment of 8 Selected Study Areas, Vol. III	22-Jan-91
Non-Releasable Baseline Risk Assessment of 8 Selected Study Areas, Vol. IV	22-Jan-91
Index to Compendium Of CERCLA Response Selection Guidance Documents	28-Mar-91
Site-Specific Safety & Health Plan, Geotechnical Investigations	Apr-91
Detailed Work Plan for Regional Geotechnical Investigation, Edgewood Area	12-Jul-91
APG Overall Area Fact Sheets	1992 – Present
Work Plan for CERCLA RI/FS Study – Final Generic RI/FS Work Plan for Bush River, Lauderick Creek & Other Edgewood Areas	Jun-92
Appendix J to the Work Plan for CERCLA RI/FS Study – Final Generic RI/FS Work Plan for Bush River, Lauderick Creek & Other Edgewood Areas	Jun-92 revised Dec-99
APG Installation Restoration Program Meeting Minutes, Vol. I	1993 – Present
Risk & Biological Impact Assessment at APG: Technical Plan Vol. I: Text	Mar-93
APG Installation Restoration Program Quarterly Newsletters Vol. I	Spring 1993 – Present
Risk & Biological Impact Assessment at APG: Technical Plan Vol. II: Appendices A-R	Mar-93
Field Sampling & Analysis for Bush River, Lauderick Creek & Other Edgewood Areas, Generic Chemical Data Acquisition Plan, Edgewood Area	Mar-93
Site Health & Safety Plan APG, EA Drum Sampling	Apr-93
Generic Health & Safety Plan for Field Sampling & Analysis for Bush River, Lauderick Creek & Other Edgewood Areas	May-93
Public Health Assessment for APG, Michaelsville	9-Jun-93
Public Health Assessment for AA/EA Aberdeen, Harford County, MD CERCLIS #MD2210020036	Sep-93
APG Deer Study Project #75-23-YS50-94 Work Plan	1-Nov-93
Environmental Services APG, MD Generic Work Plan Multiple Delivery Orders Vol. 1	23-Nov-93
Environmental Services APG, MD Generic Work Plan Multiple Delivery Orders Vol. 2	23-Nov-93
Generic Work Plan UXO Support for Interim Remediation Edgewood Area Multiple Delivery Orders	20-Dec-93
Environmental Assessment for the Proposed Removal Actions for the Edgewood Area	18-May-94
Aberdeen Area, Sampling & Analysis Report for Groundwater Monitoring	Jul-94
Interim Tech Report: Preliminary Ecological Stress Survey on the Gumpowder River	Jan-95
Recommended Analytical Methods for Obtaining Adequate Quantitation Limits for use in Risk Assessments	Mar-95
Terrestrial & Ecological Risk Assessment, Quality Assurance Project Plan, Vol. I	Mar-95
Terrestrial & Ecological Risk Assessment, Quality Assurance Project Plan, Vol. II	Mar-95
Analytical Results of Groundwater Samples Collected from 6 Residents Who Live Along the Installation Boundary Vol. I	17-Mar-95

Title	DATE
Analytical Results of Groundwater Samples Collected from 6 Residents Who Live Along the Installation Boundary Vol. II	17-Mar-95
Bush River, Carroll Island, Graces Quarters & Lauderick Creek (including Cluster 1: Former Nike Site), Statement of Work for Engineering Programmic Support to the Hazardous Waste Remedial	25-Mar-95
Reference Sampling & Analysis Program Field Operations Work Plan	Apr-95
Non-Releasable QA/QC Plan for the Field Operations of Minicams as Agent Monitors for GB, GD, VX & HD (Contract #DACA31-94-D-0020)	Apr-95
Field Study #75-23-YS50-94 Health Risk Assessment of Consuming Deer from APG, Report & Appendices A-G	May-95
Removal Action Project Generic Work Plan, APG, MD Vol. 1	May-95
Removal Action Project Generic Work Plan, APG, MD Vol. 2	May-95
Boundary UXO Survey Report for the Edgewood Area of APG	25-May-95
Ecological & Human Health Risk Assessment for the Gunpowder River Study Area Quality Assurance Project Plan, Edgewood Area	Jun-95
Reference Sampling & Analysis Program Quality Assurance Project Plan, Edgewood Area	Jul-95
Reference Sampling & Analysis Program Soil, Sediment & Surface Water Reference Data Report, Edgewood Area	Jul-95
Environmental Assessment for Future Removals at the Aberdeen & Edgewood Areas	Dec-95
Data Summary Report for the Aberdeen Area, Sampling in Support of the Risk & Biological Impact Assessment of APG	Jan-96
Preliminary Risk Assessment for 8 Selected Study Areas, Vol. I	Mar-96
Preliminary Risk Assessment for 8 Selected Study Areas, Vol. II	Mar-96
Reference Sampling & Analysis Program Benthic Macrofauna Survey Data Reprt	Apr-96
Year I, Community Relations Support & Fish Pathology Studies in Support of the Environmental Installation Restoration Program, Directorate of Health, Safety & Environment Installation	18-Jun-96
DOD: Relative Risk Site Evaluation Primer (Interim Edition)	Summer 96
Benthic Habitat Survey of Bush River	Aug-96
Installation Restoration Program Weekly Activities Report Vol. I - VII	Jan-97
Windrows Plots for Carroll Island, Graces Quarters & Nike Site	Jan-97
Analytical Results of the APG Potable Water Supply Well	11-Jan-97
Use of Continuous Marine-Seismic Reflection to Locate Buried Paleochannels near the Gunpowder Neck	10-Feb-97
Base Environmental Support (Best) Contract General Quality Assurance Project Plan, EA, APG	Jul-97
Edgewood Research Development & Engineering Center Historical Document Review	Jul-97
Non-Releasable Water Quality Biological Study #24-00413-78 an Assessment of Surface Waters	11-29 Jul 97
Investigation in the Sediments in the Gunpowder River, EA, APG, MD	Sep-97
Conceptual Hydrogeologic Model of APG Area	Sep-97
Habitat Characterization of Edgewood Area	Nov-97
Potential Health Impacts from Range Fire at APG	Mar-98
Installation Restoration Community Relation Plan	1995 Revised May 1998
Environmental Assessment for Prescribed Burns at Aberdeen & Edgewood Area Test Ranges for Air Monitoring of Range Fire Emissions	Feb-99
Base Environmental Support (BEST) Contract General Safety and Health Program by Roy F. Weston	Jul-99
Environmental Assessment for Ballistics Testing of Tent & Foam for Use in Removal Actions	Oct-99
Background Concentrations of Selected Radionuclides Summary Report	Feb-00
Annual Certification of Non-Violation of Land-Use	Oct-00
Honey Bee Sentinel Monitoring Supplemental Report	May-03
Five-Year Review Repoty	Sep-03
Edgewoos Area, Five-Year Review	Sep-03

Michaelsville Landfill - Operable Unit 1 (Source) AAML01

SITE DESCRIPTION

Michaelsville Landfill - Operable Unit 1 addresses the contamination source at the Michaelsville Landfill. Michaelsville Landfill is located in the north-central portion of the APG-AA and is a 20-acre, unlined municipal-type landfill. Operations at the landfill began in 1969 and continued until its closure in 1980.

Previous studies of the landfill operations indicate that trench and fill methods were used for waste disposal. The majority of the materials reportedly disposed of in Michaelsville Landfill were domestic trash and trash from non-industrial sources at APG. Other materials that may have been disposed of in limited quantities include solvents, waste motor oils, PCB transformer oils, wastewater treatment sludges, pesticides, insecticides, and rodenticides. Michaelsville Landfill was listed on the National Priorities List (NPL) in 1989.

In June 1992, a ROD was published for this OU which recommended installation of a landfill cap. The installation of the cap was completed in August 1994.

The Michaelsville Landfill Close Out Report was approved by EPA in 2002. EPA has reported that there is an indefinite delay in the delisting of this site off of the NPL.

STATUS

CONTAMINANTS: Trash, Solvents, Oils, Sludges, Pesticides, Insecticides, Rodenticides

MEDIA OF CONCERN: Soil, Sediment, Groundwater, Surface Water

RRSE RATING: High

COMPLETED IRP PHASE:
PA/SI, RI, IRA, RD, RA

CURRENT IRP PHASE:
RIP (1994) with LTM

FUTURE IRP PHASE:
RIP (1994) with LTM

PROPOSED PLAN

Current actions for the site include long term monitoring/maintenance of the landfill cap.

Michaelsville Landfill - Operable Unit 2 (Groundwater) AAML02

SITE DESCRIPTION

Michaelsville Landfill - Operable Unit 2 addresses sediment, surface water, and groundwater contamination at and near the Michaelsville Landfill. Michaelsville Landfill is located in the north-central portion of the APG-AA and is a 20-acre, unlined municipal landfill that was capped in 1994.

In September 1997, a ROD was signed for OU2 that requires long-term monitoring of the site, annual sampling, and the establishment of a one-quarter mile drinking water well restriction zone.

In FY99, the first round of sampling was completed. Generally, contaminant levels have decreased since the RI although near RI concentrations of VOCs and elevated levels of iron, manganese, and ammonia were detected in the groundwater. Detections of contaminants in surface water generally decreased although a few metal concentrations increased. While sediment sampling results showed decreases in SVOCs, some inorganic levels have increased. The third round of sampling was completed in FY02.

The Five-Year Review was completed and signed by EPA in 2003. The monitoring plan for ML was revised in Feb 2004.

STATUS

CONTAMINANTS: VOCs, SVOCs, Metals, Inorganics, Ammonia

MEDIA OF CONCERN: Groundwater

RRSE RATING: High

COMPLETED IRP PHASE: PA/SI, RI, RA

CURRENT IRP PHASE: RIP (1994) with LTM

FUTURE IRP PHASE: RIP (1994) with LTM

PROPOSED PLAN

The next monitoring event will occur in March 2005.

Other Aberdeen Areas - Landfills
AAOA01

SITE DESCRIPTION

The Other Aberdeen Areas - Landfills are comprised of dump areas including the Churchville Test Course Dump, the Old Dump at Swan Creek, the Old Chemical Dump on Spesutie Island, and the Woodrest Creek Dump. These landfills are located within the APG-AA with the exception of the Churchville Test Course Dump which is located approximately 8 miles north of APG. These landfills have been grouped together due to similarities into one AEDB-R number.

A Removal Action was conducted at the Old Dump at Swan Creek in 1996 to cover waste material onsite and protect against erosion. Phase I RI results indicate lead and arsenic contamination in the soil at the Old Dump at Swan Creek. Metals were detected in the soil and surface water and metals and pesticides were detected in the sediments. Numerous contaminants were detected in sediments at the Old Chemical Dump on Spesutie Island. Nine metals including lead and arsenic were detcted in the sediments exceeding the screening criteria at Woodcrest Creek Dump. Elevated concentrations of zinc and nickel were found in sediment samples obtained at the Old Chemical Dump on Spesutie Island.

The Phase II RI report was completed in April 2003.

The Eco Risk Assessment, PP and ROD are expected to be completed in FY05.

STATUS

CONTAMINANTS:
Buried Metals, Waste
MEDIA OF CONCERN:
Soil, Sediment, Surface Water, Groundwater
RRSE RATING: Medium
COMPLETED IRP PHASE:
PA/SI, IRAs
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RD, RA, LTM

PROPOSED PLAN

The PBC for the Other Aberdeen Aras was awarded in Sept 2004. Site closure is planned under the PCB.

Further assessment of the Woodcrest Dump is required along with possible LTM due to high levels of metals (arsenic & lead) and PAHs.

Some surface soils will be removed at the Swan Creek Dump due to high levels of metals.

Sediment removal at Old Chemical Dump on Spesutie Island is also expected due to the high levels of metals.

There will be no further action at the Churchville Test Course Dump.

Other Aberdeen Areas - Surface Disposal Areas
AAOA02

SITE DESCRIPTION

The Other Aberdeen Areas – Surface Disposal Areas consist of the Sandblasting Area near Bldg 523, the Spesutie Island Burn Trench, the Metal Barricade at Bldg 1122, the Chemical Dump Ponds on Spesutie Island, the Bldg 705 CSTA Fragmentation Pit, the Bldg 510 Barrels, and the Poverty Island Potential Mine Burial Site. The Other Aberdeen Areas – Surface Disposal Areas are also comprised of battery storage/disposal areas at Abbey Point and Spesutie Island. These sites have been grouped together due to similarities into one AEDB-R number. Removal of old batteries at Spesutie Island and Abbey Point has been conducted. Two additional sites, DRMO Metal Scrap Yard and Shell Washout Wastewater Ditch at Bldg 700B, were added to AAOA02 in FY04.

A soil removal has been conducted at the Sandblasting Area near Bldg 523 and the Bldg 510 Barrels. Phase I RI results for the discarded battery site at Spesutie Island indicate metal contamination in site sediments. Linear geophysical anomalies were revealed at the Spesutie Island Burn Trench and determined to be old unmapped utilities. High concentrations of manganese were detected in the groundwater near the Spesutie Island Chemical Dump Ponds. PCE, TCE and 1,1-DCE were detected in the groundwater at the Old Bombing Field. Heptachlor were detected in the groundwater at the Poverty Island Potential Mine Burial Site.

Phase II RI for OAA was completed in April 03. Explosives are an issue in the groundwater and sediments at Site 25, Shell Wasout Wastewater Ditch at Bldg 700B. VOCs (TCE) has also been found in the groundwater above criteria at DRMO.

STATUS

CONTAMINANTS: VOCs, SVOCs, Metals, Heptachlor, Radiological, Batteries, Buried Anomalies

MEDIA OF CONCERN:
Soil, Groundwater, Sediment

RRSE RATING: High

COMPLETED IRP PHASE:
PA/SI, IRAs

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RD, RA, LTM

PROPOSED PLAN

The PBC for the Other Aberdeen Aras was awarded in Sept 2004. Site closure is planned under the PCB.

Limited sediment removal and removal of any remaining discarded batteries at Abbey Point Navigational Light at Spesutie Island Navigation Light may be necessary.

Removal of metals & PCBs contaminated sediments is planned for site 16, DRMO Metal Scrap Yard.

Hot spot treatment may be needed for the VOC & RDX plume at the DRMO and Bldg 700B areas.

Other Aberdeen Areas - Underground Storage Tanks AAOA08

SITE DESCRIPTION

The Other Aberdeen Areas – Underground Storage Tanks (USTs) are comprised of hazardous waste USTs at Bldg 4726; waste oil storage tanks at Bldgs B402, 436, 456, 615, 2458, 3329, 3505, 4036, 5046, 2379, 4728; and Tower Road. These sites were grouped together due to similarities into one AEDB-R number. Bldg 525, M600, Bldg 507 and Bldg 3327 were added to AAOA08 in FY04.

Several USTs and contaminated soil have been removed from these locations. Phase I RI sampling of the Bldg 2458, 3329 and 3505 USTs confirmed the presence of low levels of PCE/TCE in the groundwater; however, adequate penetration past the UST monitoring well screen depths was not achieved by the geoprobe samplers. Solvent contamination was found in the groundwater under Bldg 3505. All of the USTs have been removed or closed in place.

The RI for the USTs was completed in FY02, the FS will be completed in FY05. The RI for Tower Rd was completed in March 2004 and a preliminary draft FS was completed. The RI for Bldg 525 was completed in 2001 with the FS completed in 2002.

STATUS

CONTAMINANTS:
VOCs, Solvents
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, IRAs
CURRENT IRP PHASE:
RI/FS, RD, RA
FUTURE IRP PHASE:
RA, LTM

A in situ chemical oxidation pilot study was conducted in 2002 at Bldg 525 on an area of 180 x 120 ft where CVOCc levels were highest. The study reduced 9.2 lbs of CVOCs. However, TCE levels can still be found up to 647 ppb.

PROPOSED PLAN

The PBC for the Other Aberdeen Aras was awarded in Sept 2004. Site closure is planned under the PCB.

Complete FS.

Additional injections to further reduce CVOCs are planned along with LTM at the study areas.

Other Aberdeen Areas - Firing Ranges
AAOA12

SITE DESCRIPTION

The Other Aberdeen Areas - Firing Ranges consist of the Transonic Range, the Pistol Range, and the Known Distance (KD) Range. These sites were grouped together due to similarities into one AEDB-R number.

Phase I RI analytical results for the Transonic Range revealed inconsistencies with two previous rounds of sampling at the site. Only one area of soil contamination was identified in the Pistol Range. Numerous metals of concern were detected in the surface water at the KD Range; no sediment samples were taken. Metals and radiological contamination of concern were also detected in soils and groundwater at the KD Range. The Phase I RI was completed in FY02, the FS will be completed in FY05.

Phase II RI for OAA was completed in April 2003 and the FS will be completed in FY05.

STATUS

CONTAMINANTS:
Metals, Radiologicals

MEDIA OF CONCERN: Soil, Surface Water, Groundwater, Sediment

RRSE RATING:
Low

COMPLETED IRP PHASE:
PA/SI, IRA

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

The PBC for the Other Aberdeen Aras was awarded in Sept 2004. Site closure is planned under the PCB.

Removal of sediment and soil may be needed at the Transonic, Known Distance and Pistol Range.

Other Aberdeen Areas - Drainage Ditches AAOA03

SITE DESCRIPTION

The Other Aberdeen Areas – Drainage Ditches consist of a Burn Area near Building 1171, and Storm Sewer Outfalls at Buildings 309 and 390. These sites were grouped together due to similarities into one AEDB-R number. Site 25, Shell Washout Wastewater Ditch at Bldg 700B, which was previouly included inb AEDB-R site AAOA03 was moved to AAOA02 in FY04.

Phase I RI results indicate a variety of low level contaminants in the surface water and sediments at the Buildings 309 and 390 outfalls. Both outfalls discharge to drainage ditches that terminate in Dipper Creek.

The Phase II RI for OAA was complete in April 2003.

STATUS

CONTAMINANTS:
Explosives, Metals
MEDIA OF CONCERN:
Groundwater, Surface Water, Sediment
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, IRA, RI/FS
CURRENT IRP PHASE:
RC - 2004

Other Aberdeen Areas - Spill Site Areas AAOA04

SITE DESCRIPTION

The Other Aberdeen Areas – Spill Site Areas are comprised of the Building 450 DDT Spill Site, the Building 5010 Pesticide Spill Area, the Building 5215 POL Facility Sand Pit, the Building 331 Pesticide Contamination Site, spill area at Building 507 and spill area at Building M600. These sites were grouped together due to similarities into one DSERTS number. Building 507 and M600 were added to this DSERTS site in 2001. Chlorinated solvent contamination in the groundwater in the vicinity of Bldg M600 has been recently discovered. Bldg 507 and M600 were moved to AAOA08 in FY04.

Phase I RI results at the Building 5010 Pesticide Spill Area confirm pesticide contamination in soils at the site and various contaminants in the groundwater. A variety of contaminants were detected in the groundwater at the Building 5215 POL Facility Sand Pit through geoprobe screening data. Groundwater analysis from a new monitoring well at the site detected no sigificant contamination.

Contaminated soil was removed at the Bldg 331, 450 and 5010 areas.

The Phase II RI for OAA was completed in April 2003.

STATUS

CONTAMINANTS:
Pesticides, POL, Radiation, Solvents
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, IRAs, RI/FS
CURRENT IRP PHASE:
RC - 2004

Infectious Waste Incinerator
AAOA05

SITE DESCRIPTION

The Infectious Waste Incinerator was located adjacent to the Kirk U.S. Army Health Clinic in Building 2502. The incinerator was operated under a State of Maryland permit from 1977 to 1988. Waste ash was disposed of offsite.

No releases were documented during the timeframe of operation. The unit has been dismantled and disposed of offsite.

This site requires no further action.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC - 1990

German Ammunition Train Explosion Area
AAOA06

SITE DESCRIPTION

The German Ammunition Train Explosion (GATE) Area is located off Michaelsville Road in an inland location. Approximately 200 tons of German munitions were stored on railroad cars following WWII awaiting disposal. An explosion of 20 tons occurred on the railroad tracks along the Michaelsville Road between Building 710 and the road's intersection with Rifle Range Road near Building 728. This explosion scattered the remaining munitions over a 400-acre area.

Phase I RI results indicate that the groundwater near the site is contaminated with bis(2-ethylhexyl)phthalate, gross alpha, and thallium contamination. Re-samples from this area did not show the contamination.

No further action is required.

This site may be reevaluated after the Range Rule is finalized.

STATUS

CONTAMINANTS:
UXO, SVOCs, Thallium, Radiological, Metals
MEDIA OF CONCERN:
Soil, Groundwater, Surface Water
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2002

Other Aberdeen Areas - Storage Areas
AAOA07

SITE DESCRIPTION

The Other Aberdeen Areas – Storage Areas are comprised of the DPW Backyard Storage Transformer Area at Bldg 5262; Yard; a Waste Oil Storage Area at Bldg 462; Battery Storage Areas at Bldgs 2351, 4728 and 5039; and Pesticide Storage Areas at Bldgs 509, 5261 and 5603. These sites were grouped together due to similarities into one AEDB-R number. The DRMO Scrap Yard site was included in AAOA02 as of FY04.

Contaminated soils were removed from the Backyard Storage area. No removals were necessary at the other areas.

STATUS

CONTAMINANTS:
PCBs, Pesticides, POL, Metals
MEDIA OF CONCERN:
Sediment, Soil, Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, IRAs, RI/FS
CURRENT IRP PHASE:
RC - 2004

Other Aberdeen Areas - Washracks
AAOA10

SITE DESCRIPTION

The Other Aberdeen Areas – Washracks consist of washracks at Buildings 338, 402, 1060 and 2352 and washracks/oil water separators at Buildings 1102A, 5048 and 525. These sites were grouped together due to similarities into one AEDB-R number. Bldg 525 was moved to AAOA08 in FY04.

The RFA for Bldg 338, 402, 1060, 2352 and the washracks/oil water seperators at Bldgs 1102A and 5048 concluded no further action is required.

A RI for Bldg 525 was finalized in FY01, and the FS was completed in FY02. A pilot study (100 x 100ft area) was started in May 2002.

STATUS

CONTAMINANTS:
Solvents, POL, Explosives
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2004

Other Aberdeen Areas - Waste Treatment Plant
AAOA11

SITE DESCRIPTION

The Other Aberdeen Areas – Waste Treatment Plants are comprised of the Pusey Wastewater Treatment Facility, the Building 1125 Wastewater Discharge, the Building 683 Sewage Treatment Plate Range, the Phillips Army Airfield Disposal Plant (Building 1092), and the Building 861 Disposal Facility. These sites were grouped together due to similarities into one DSERTS number.

With the exception of the Pusey Wastewater Treatment Facility, all of the Other Aberdeen Areas – Waste Treatment Plants were recommended for no further investigation within the RFA.

The Pusey Wastewater Treatment Facility Plant has since been sampled by the APG Environmental Compliance Division (ECD); no further investigation is planned.

No further action is planned for these sites.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2000

CSTA Buried Drum Site, Building 896
AAOA13

SITE DESCRIPTION

The CSTA Buried Drum Site is located at Building 896 in the APG-AA. A drum removal was previously completed at the site. The CSTA Buried Drum Site is located in the Western Boundary Study Area (WBSA).

Sampling after the drum removal, found no significant contamination.

No further investigation is planned.

STATUS

CONTAMINANTS:
POL
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 2000

White Phosphorus Munitions Land Burial Areas
AAOA14

SITE DESCRIPTION

The White Phosphorus Munitions Land Burial Area is located at the tidal marsh region of Mosquito Creek near Black Point in the northeastern portion of the APG-AA. This site is associated with another area of suspected white phosphorus dumping or burial, the White Phosphorus Underwater Munitions Burial Area (DSERTS No. AAWP01). White phosphorus burial reportedly occurred in the waterfront region of Black Point in an area encompassing 15 acres during the 1920s. The suspected source of contamination at the White Phosphorus Munitions Land Disposal Area included a possible barge load of munitions and bulk white phosphorus in the Black Point tidal marsh.

In 1991, aeromagnetic surveys were conducted in an attempt to delineate the land burial area. The results of this survey indicated an anomaly in the northern portion of the survey area. Subsequent ground geophysics and site investigations revealed no evidence of an anomaly indicative of buried barge with white phosphorus munitions.

No further investigation or remediation is planned at this site.

STATUS

CONTAMINANTS:
Explosives, Metals

MEDIA OF CONCERN:
Soils

RRSE RATING:
Low

COMPLETED IRP PHASE:
PA/SI, RI/FS

CURRENT IRP PHASE:
RC - 2000

Western Boundary Area Groundwater - Operable Unit 1
AAWB01

SITE DESCRIPTION

Operable Unit 1 addresses contaminated groundwater in the southwestern portion of the Western Boundary Study Area, near the Harford County production wells.

Results of the ongoing RI/FS activities in early FY93 confirmed trichloroethylene (TCE) contamination of two Harford County drinking water wells in Perryman. In April 1993, the U.S. Army, in coordination with the EPA, State of Maryland, and Harford County officials, began construction of a granular activated carbon (GAC) treatment system to remove the TCE from the two wells. The system began operation in June 1993. Because of the risk of offpost wells becoming contaminated, the preferred alternative from the Proposed Plan for this OU is GAC treatment of all groundwater from the Perryman Well Field.

A ROD was signed in July 2000, and required the construction of a new treatment plant to treat all county production wells and groundwater monitoring. The new plant is located off-post and was completed in Oct 2003.

STATUS

CONTAMINANTS:
TCE, Explosives
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA, RD, RA
CURRENT IRP PHASE:
RIP (2003) with RA(O)
FUTURE IRP PHASE:
RIP (2003) with RA(O)

PROPOSED PLAN

Operation of the system and groundwater monitoring will continue.

Phillips Army Airfield Landfill/ City of Aberdeen Wells - Operable Unit 2 AAWB02

SITE DESCRIPTION

Operable Unit 2 addresses the groundwater near Phillips Army Airfield (PAAF) Landfill and City of Aberdeen wells located north of the landfill. The PAAF Landfill (~35 acres) has been used since the 1950s for the disposal of construction debris, oils, solvents, and general refuse. Soil cover was placed over the landfill. The landfill is currently closed. A French Land Mine Training Area is also part of this area.

The City of Aberdeen wells and nearby monitoring wells were sampled in 1998 & 2001. An explosives compound, RDX, was detected in one of the City of Aberdeen wells (CAP7). Low solvent concentrations were recently detected. Additional geoprobes were subsequently installed in an attempt to identify the RDX. No RDX plume was found.

Geoprobes and monitoring wells sampled in 2001-2003 had perchlorate detections. Perchlorate was also detected in City of Aberdeen drinking water wells. The standard for perchlorate in drinking water has not been estiablished by EPA or MDE.

There has been increased concern about UXO at this site, both on and off-post.

STATUS

CONTAMINANTS: Explosives, Solvents, MTBE, Perchlorate

MEDIA OF CONCERN:
Groundwater

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, RD, RA, LTM

PROPOSED PLAN

APG will continue to monitor the groundwater for perchlorate. To date, EPA nor MDE have established a drinking water standard for perchlorate.

Other Media - Operable Unit 3 (Surface Water, Sediment, & Soil) AAWB04

SITE DESCRIPTION

Operable Unit 3 addresses sediment, surface water, and soil within the Western Boundary Study Area. Environmental sampling within OU3 has been accomplished to support a Human Health Risk Assessment for the Western Boundary Study Area and an Ecological Study for the entire Aberdeen Area (AA).

The collected data was screened and validated. The Human Health Risk and Ecological Risk Assessment is planned to be completed in FY05.

STATUS

CONTAMINANTS:
Pesticides
MEDIA OF CONCERN:
Sediment, Surface Water, Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS, RD
FUTURE IRP PHASE:
RA

PROPOSED PLAN

Complete ecological risk assessments, PP and ROD for all of AA.

Soil/sediment removal may be required.

Fire Training Area
AAWB03

SITE DESCRIPTION

The Fire Training Area, located within the restricted area of APG, is included in the Western Boundary Study Area. This two-acre site was used for training exercises from the early 1960s until 1989 that consisted of filling training pits with water and fuel, and subsequently igniting the pit. After a training exercise, fuel remaining in the training pits was allowed to burn off. The materials handled at the site included diesel fuel, gasoline, kerosene, jet engine fuels (i.e., JP4 and JP5) waste oils and solvents.

In 1993, a Removal Action was performed at the Fire Training Area to remove soil contaminated with TCE and total petroleum hydrocarbons.

As a result of the 1993 removal action, no further action is required at the site.

LTM is funded under AAWB01.

STATUS

CONTAMINANTS OF CONCERN:

VOCs

MEDIA OF CONCERN:

Soil , Groundwater

RRSE RATING:

High

COMPLETED IRP PHASE:

PA/SI, RI/FS, IRA

CURRENT IRP PHASE:

RC - 1995

Old Bush River Road Dump - Cluster 3
EABR03-A

SITE DESCRIPTION

The Old Bush River Road Dump (OBRRD) is a 1.5 acre, WWI-era landfill containing munitions, burnt gas masks, chemical laboratory glassware, and process equipment. Rain and erosion were causing metals in the soil to move from the surface soil into a nearby marsh; additionally, two munitions were recovered during previous environmental work performed at the site.

The final ROD for the construction of a soil cover over the OBRRD was signed in June 1999. The soil cover is intended to reduce infiltration, prevent erosion and the subsequent migration of metal contamination into the nearby marsh, and provide a barrier against potential detonation of UXO. A clay confining layer exists under the landfill; therefore, groundwater contamination is not a concern. Construction of the soil cover began in October 1999, and was completed in October 2000.

LTM was started in FY00.

STATUS

CONTAMINANTS:
Metals, UXO
MEDIA OF CONCERN:
Soil, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRAs, RD, RA
CURRENT IRP PHASE:
RIP (2000) with LTM
FUTURE IRP PHASE:
RIP (2000) with LTM

PROPOSED PLAN

LTM will continue.

Transformer Storage - Cluster 3
EABR03-B

SITE DESCRIPTION

The Transformer Storage Area is a former Directorate of Public Works (DPW) site that was used from 1964 to 1989 for utility storage, including storage of transformers, and housed a former gasoline station. The gas station was demolished in 1977. This site also contained a sump containing a pump for dispensing fuel and a 15,000-gallon UST. The UST and sump were removed in 1991.

Samples collected at multiple depths at this site indicate the presence of lead at 4,650 mg/kg - concentrations in excess of the suggested EPA cleanup level and which may pose an ecological risk. No specific source for the lead contamination has been identified. The soil is believed to have been disturbed following contamination, as no correlation between lead concentration and depth was noted. A Feasibility Study has been completed defining the extent of contamination and assess remedial alternatives.

STATUS

CONTAMINANTS:
Lead
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRAs
CURRENT IRP PHASE:
RD
FUTURE IRP PHASE:
RA

PROPOSED PLAN

Lead-contaminated soil will be removed.

26th Street Disposal Site (1) - Cluster 11
EABR11-A

SITE DESCRIPTION

This site consists of a mask canister and charcoal burning area on the west side of 26th Street. Historical aerial photography from 1929 indicates activity in the mask canister burning area, which continued until the late 1960s or 1970s. This disposal operation involved burning off-spec and unserviceable gas mask containers within their wooden box packaging. The metal residuals were left in place and were gradually filled over by a thin cover of soil.

Test pit samples collected from this area during Phase I of the FFS contained metals above RBC levels (e.g., lead at 1,240 mg/kg, chromium at 182 mg/kg and zinc at 349,000 mg/kg).

STATUS

CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RD
FUTURE IRP PHASE:
RA

PROPOSED PLAN

It is anticipated that the soil/waste will be excavated.

26th Street Disposal Site (2) - Cluster 11
EABR11-B

SITE DESCRIPTION

This open dump site located to the east of 26th Street is approximately 100 to 150 ft in diameter. The time period in which dumping occurred is unknown; however, some dumping may have occurred as recently as the 1970s. The Edgewood Area RFA field inspection of the site identified miscellaneous waste and medical/biological laboratory waste. Removal of potentially contaminated surface and subsurface material began in 1993. In 1996, two drums containing cobalt-60 and cesium-137 were located. Removal of the waste and excavation of the soil continued, with 1,000 tons of radioactive waste removed.

The site was closed-out, sloped, and seeded following release from the NRC license in July 1998. Pesticides were detected in sediments at concentrations above ecological risk levels (e.g., DDTr at 9,370 mg/kg).

STATUS

CONTAMINANTS:
Pesticides
MEDIA OF CONCERN:
Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRAs
CURRENT IRP PHASE:
None
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

It is anticipated that the contaminated soil may be removed.

22nd Street Landfill - Cluster 11
EABR11-C

SITE DESCRIPTION

The 22nd Street Landfill comprises 8.3 acres of the Bush River Study Area and is the largest landfill on the Edgewood Peninsula. This site was a marsh that had been used for landfilling operations during the 1960s through early 1970s. The landfill contains hazardous waste, including a reported bromobenzylcyanide tank, sulfur sludge, laboratory glassware, and demolition debris. Efforts to dig test pits in the landfill were abandoned, as no area free of metallic anomalies could be located.

VOCs, methane, and carbon dioxide with freon were detected in landfill gas samples. Soil in the stream to the south of the landfill contains pesticides at concentrations above ecological risk levels (e.g., DDTr at 8,168 mg/kg). Surface water samples collected around the landfill contain chromium (32.4 mg/L), copper (65.2 ug/L), zinc (606 ug/L) and chlorinated solvents (51 ug/L TVOCs in surface water and 163 ug/L TVOCs in sediment).

STATUS

CONTAMINANTS:
Pesticides, Metals, VOCs

MEDIA OF CONCERN:
Surface Water, Soil, Sediment

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI, RI/FS

CURRENT IRP PHASE:
None

FUTURE IRP PHASE:
RD, RA, LTM

PROPOSED PLAN

The EPA presumptive remedy for military landfills would indicate future capping and/or containment of this site. A wetland area will be constructed to control potential discharge to the Bush River.

Surficial Aquifer - Cluster 11
EABR11-F

SITE DESCRIPTION

The surficial aquifer in the Southern Bush River peninsula is a complex sequence of interfingered sands, clays, and silts. The aquifer at many locations is divided into an upper and lower section by laterally discontinuous silt and clay layers, which is very important to the hydraulic continuity of the surficial aquifer. A massive clay confining unit defines the base of the surficial aquifer. Groundwater sampling was performed within Cluster 11 during RI and FFS field activities. Cluster 11 contains a portion of the large VOC plume which underlies the Southern Bush River Area. Six potential VOC source areas have been identified within Cluster 11. VOC contamination within the groundwater plume predominantly ranges from 1 to 99 ppb total VOCs; however, two hot spots in Cluster 11 contain concentrations of 83,810 ppb and 17,626 ppb total VOCs. Industrial scenarios for future cancer risks by groundwater ingestion were estimated as $3x10^{-3}$ from 1,1,2,2-TECA and carbon tetrachloride. The non-cancer hazard index was greater than one (five) from VOCs.

STATUS

CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RD, RA, RA(O)

PROPOSED PLAN

Remediation of the Cluster 11 surficial aquifer is anticipated based upon the results of groundwater monitoring. The FFS (currently underway) will evaluate the most appropriate treatment technique, however source removal and natural attentuation are expected. The development of a Technical Impractability (IT) will also be considered.

Radioactive Material Disposal Facility
EABR11-I

SITE DESCRIPTION

EABR11-I consists of the Bush River Radioactive Material Disposal Facility (BRRMDF), the Toxic Gas Yard (TGY) Ton-Container Steamout Site, several associated buildings, and an open storage yard. Constructed in 1931, the Army first used the BRRMDF for chemical agent storage. In the late 1950s or early 1960s, the BRRMDF became a dedicated facility for radioactive waste material processing, packaging, and temporary storage prior to disposal. Actual disposal of radioactive waste has never occurred at this site. Radioactive waste storage operations still occur in the open storage yard and designated buildings under a NRC license. The TGY Ton-Container Steamout Site was constructed during 1938 and operated intermittently until the late 1950s or early 1960s. Operations at this facility included the decontamination of one-ton cylinder containers used to store mustard, chloropicrin, Lewisite, and other chemical agents.

STATUS

CONTAMINANTS: Radiologicals, Arsenic, Mustard Deg. Products

MEDIA OF CONCERN:

Wastewater, Soil

RRSE RATING:

Medium

COMPLETED IRP PHASE:

PA/SI, RI/FS, IRA

CURRENT IRP PHASE:

IRA (funded in FY03)

FUTURE IRP PHASE:

RD, RA

Approximately two-thirds of the soil at the BRRMDF is contaminated with Cs-137, with significant non-removable Cs-137 contamination associated with drains in two buildings, three pits, sewer pipes, and a sump. The highest Cs-137 value (i.e., 4,600 pCi/g) was found in the top six inches of soil. Wastewater within a liquid waste concentrator contains concentrations of Cs-137, uranium-238, and strontium-90 above MCLs. Arsenic (max conc. 230 mg/kg) at concentrations above the Maximum Reference Value and RBC for industrial soil exist in the soil throughout the site. Mustard agent degradation product and solvents were detected in soil gas samples collected in the northeast corner of the site.

A RAD soil removal was funded in FY03.

PROPOSED PLAN

Excavation of metal and VOC-contaminated soil is planned.

Kings Creek Chemical Disposal Site - Cluster 15
EABR15-A

SITE DESCRIPTION

The Kings Creek Chemical Disposal Site lies adjacent to Kings Creek and outside the fenced portion of Southern Bush River. As a former chemical material disposal area, visual inspections of the site indicate that open burning and drum storage were the primary methods of disposal. The types of material found at the site suggest activity occurred during the 1920s and 1930s.

The Army has recovered a large amount of UXO from this site, including Livens projectiles, Stokes mortar rounds, and badly corroded Stokes mortar fuses.

Additional scrap metal and drums were removed during a 1992 action to remove waste material from the shoreline. Thirty-five of the drums contained the tear gas CN and 12 contained an unknown, inorganic crystalline solid. Sampling identified metals contamination in the surface soil above RBCs (e.g., arsenic at 158 mg/kg). Small areas of buried material adjacent to the western boundary of the site were also identified.

A pallet of glassware containing chemical warfare agents was removed and disposed of in spring 2003.

STATUS

CONTAMINANTS:
Metals, Buried Material, CWM
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, IRAs
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA, LTM

PROPOSED PLAN

Complete the RI/FS. Some soil excavation and shoreline stabilization is planned.

30th Street Landfill - Cluster 15
EABR15-B

SITE DESCRIPTION

The 30th Street Landfill lies east of and adjacent to the Kings Creek Chemical Disposal Site along the north shoreline of Kings Creek. Historical aerial photography indicates activity at the 2.3 acre landfill during the late 1960s and/or 1970.

The 1992 removal action conducted at the Kings Creek Chemical Disposal Site, also detected large quantities of buried metallic objects in saturated, organic marsh sediments along the western edge of the landfill. Visual inspections of the site revealed the presence of building demolition debris. The debris is mostly covered, but exposed at some points along the edges of the fill site. Chloride contamination was identified downgradient of the site.

Small numbers of chemical munitions were discovered at the landfill's edge.

STATUS

CONTAMINANTS: Buried Material, UXO, Chemical Munitions

MEDIA OF CONCERN:
Soil, Surface Water

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA

CURRENT IRP PHASE:
None

FUTURE IRP PHASE:
RD, RA, LTM

PROPOSED PLAN

It is anticipated that a cap will be placed over the waste material. Shoreline protection measures will be implemented to prevent waste material from eroding into Kings Creek.

Surficial Aquifer - Cluster 15
EABR15-D

SITE DESCRIPTION

The surficial aquifer in the Southern Bush River peninsula is a complex sequence of interfingered sands, clays, and silts. The aquifer at many locations is divided into an upper and lower section by laterally discontinuous silt and clay layers, which is very important to the hydraulic continuity of the surficial aquifer. A massive clay confining unit defines the base of the surficial aquifer. Groundwater sampling was performed within Cluster 15 during RI, Phase I FFS, and Phase II FFS field activities. Cluster 15 contains a portion of the large VOC plume which underlies the Southern Bush River Area. One potential VOC source area has been identified within Cluster 15. VOC contamination within the groundwater plume predominantly ranges from 1 to 99 ppb total VOCs; however, one hot spot in Cluster 11 contains concentrations of 2,251 ppb total VOCs. Industrial scenarios for future cancer risks by groundwater ingestion were estimated as $3x10^{-3}$ from 1,1,2,2-TCE and carbon tetrachloride. The non-cancer hazard index was greater than one (five) from VOCs.

STATUS

CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
None
FUTURE IRP PHASE:
RD, RA, RA(O)

PROPOSED PLAN

Remediation of the Cluster 15 surficial aquifer is anticipated based upon the results of the groundwater monitoring. Source removal (in-situ treatment) and monitored natural attenuation is planned.

Bush River Dock (E2396) - Cluster 18
EABR18-E

SITE DESCRIPTION

During WWI, the Army shipped containers of bulk chemical agent and munitions by loading the items onto transport barges at the Bush River Dock. During WWII, captured foreign munitions were unloaded to flat cars on rails at the dock.

Several DPT, pore water, and sediment samples were collected off the sides and end of the Dock during the FFS to delineate the extent of porewater and groundwater contamination. High total VOC contaminant concentrations exist off the end of the dock, which are possibly attributable to a large metallic object in the sediments, but do not appear to be related to the on-shore VOC contaminants. VOC contamination has also been detected offshore within the organic silts. The highest concentration of VOCs (i.e., 15,674 ug/L) was measured off the end of the Dock at a depth of 13 to 17ft.

STATUS

CONTAMINANTS:
VOCs, CWM Deg. Products
MEDIA OF CONCERN:
Groundwater, Silts
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RIP (2003) with LTM
FUTURE IRP PHASE:
RIP (2003) with LTM

PROPOSED PLAN

Long term monitoring will be completed to track the levels of contamination released to sediments and surface water

Surficial Aquifer - Cluster 18
EABR18-F

SITE DESCRIPTION

The surficial aquifer in the Southern Bush River peninsula is a complex sequence of interfingered sands, clays, and silts. The aquifer at many locations is divided into an upper and lower section by laterally discontinuous silt and clay layers, which is very important to the hydraulic continuity of the surficial aquifer. A massive clay confining unit defines the base of the surficial aquifer.

Groundwater sampling was performed within Cluster 18 during RI, Phase I FFS, and Phase II FFS field activities. Cluster 18 contains a portion of the large VOC plume which underlies the Southern Bush River Area. One potential VOC source area has been identified within Cluster 15. VOC contamination within the groundwater plume predominantly ranges from 1 to 99 ppb total VOCs; however, one hot spot in Cluster 1 contains concentrations of 15,674 ppb total VOCs. Industrial scenarios for future cancer risks by groundwater ingestion were estimated as $3x10^{-3}$ from 1,1,2-TCE and carbon tetrachloride. The non-cancer hazard index was greater than one (five) from VOCs.

STATUS

CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
None
FUTURE IRP PHASE:
RD, RA, RA(O)

PROPOSED PLAN

Additional wells will be installed for the monitored natural attenuation.

Surficial Aquifer - Cluster 3
EABR03-C

SITE DESCRIPTION

The surficial aquifer in Cluster 3 is a thin layer consisting of silty-sand, clayey-sand, and poorly graded sand of the Cretaceous Age. This aquifer has an average thickness of approximately 5 ft, with some portions covered by as much as 22 ft of clay. The surficial aquifer is absent in the middle and northeastern portions near the Old Bush River Road Dump. The surficial aquifer contains sustained concentrations of nickel above the Maximum Contaminant Level (MCL) downgradient of the Transformer Storage Area. This aquifer is a Type III aquifer under the Code of Maryland Regulations (COMAR), and cannot be considered a potential potable water supply; therefore, no further remedial actions are recommended.

STATUS

CONTAMINANTS:
Nickel
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1999

Boat Club Fill Site (4) - Cluster 7
EABR07-A

SITE DESCRIPTION

The Boat Club Fill Sites are located within or adjacent to property used by the Boat Club in the Bush River Area. These fill sites are the locations of filling during the early 1940s and 1988. The purpose and type of fill used during the 1940s activity is unknown. The 1988 filling was accomplished in two areas in the Boat Club to create dry land area. The soil used for this filling was topsoil stripped from a construction site, which was itself a fill site.

Known contaminants at construction site include TCPU (clothing impregnation degradation product) and chlorinated VOCs from CC2 manufacturing and impregnating. PAHs and TCPU have been detected in surface water, soil, and sediment at the Boat Club Fill Sites; however, the contamination is below risk based concentrations.

Based upon the RI; this site requires no further action.

STATUS

CONTAMINANTS:
TCPU, PAHs
MEDIA OF CONCERN:
Surface Water, Soil, Sediment
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 2002

Bio-Sensor Facility - Cluster 7
EABR07-B

SITE DESCRIPTION

The Bio-Sensor Facility supported a breeding and testing program to produce dogs superior in temperament, endurance, and intelligence for Army use. This operation began in the late 1960s, but has not been active since the 1970s. The dog population was several hundred. The facility consisted of three buildings, a kennel area, and a wastewater package treatment plant. The kennel area was spray-hosed daily to carry the kennel wastes through open concrete channels to the wastewater package treatment plant. The treatment plant also received sanitary wastewater from the buildings associated with the facility, and storm runoff from the kennel and building roofs.

PAHs and heavy metals have been detected in the surface water, sediment, and soil. The RI for the site was completed in 2000. Based on the RI, this site requires no further action.

STATUS

CONTAMINANTS:
PAHs, Heavy Metals
MEDIA OF CONCERN:
Surface Water, Soil, Sediment
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 2002

Building 45-A Ammo Renovation Facility - Cluster 11
EABR11-D

SITE DESCRIPTION

Constructed in the early 1930s, the Army used Building 45-A as an ammunition renovation facility. Operations at this facility involved sandblasting to clean rust and paint from ammunition and ton-containers. The Edgewood Area RFA indicates the presence of a septic tank near Building 45-A. Building 45-A burned down sometime between 1966 and 1970. EABR11-D includes the Old Powerhouse, a coal-powered facility constructed during WWII to generate electricity. The Powerhouse was never used and is falling into disrepair.

Sampling performed during Phase I of the FFS detected PAHs and metals in the soil below industrial soil RBCs. Standing water within the Old Powerhouse was found to be non-hazardous and not a significant source of pollution. No septic tank associated with Building 45-A was located during the Phase I field investigations. A south septic tank system was removed in support of a Chemical Demilitarization construction project.

Based on the RI, no further action is recommended.

STATUS

CONTAMINANTS:
PAHs, Metals
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2000

Casy Incinerator - Cluster 11
EABR11-E

SITE DESCRIPTION

The Casy Incinerator thermally destroyed pathological waste from the time of its installation in the early 1970s until the late 1970s. Incineration of pathological wastes contaminated with radiological material potentially occurred at this facility.

Phase I FFS field activities focused on locating radiation contamination and determining whether radioactive ash or residue exist within the incinerator. Ash and wipe samples collected from within the incinerator detected some non-removable radiation; however the results of the field activities indicate that no significant radiological contamination is present at this site. Limited PAHs and metals were detected in the ash within the incinerator.

This site was remediated with non-IRP funds.

No further action is needed.

STATUS

CONTAMINANTS:
PAHs, Metals
MEDIA OF CONCERN:
Ash
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2000

Underground Storage Tank
EABR11-G

SITE DESCRIPTION

This structure is associated with Building E2364 in the Bush River Radioactive Material Disposal Facility (BRRMDF). The BRRMDF is a facility at which radioactive waste material was processed, packaged, and temporarily stored prior to disposal. Building E2364 housed a low-level radioactive liquid waste concentrator. Concentrator condensate went into stainless steel tanks located in the building. Condensate wastewater from the steel tanks discharged east through a valve pit. Drainage from the valve pit discharged north toward a marsh via the underground storage sump.

Sampling performed in support of the FFS identified concentrations of Cs-137 (2,990 pCi/g) greater than the Maximum Reference Value and RBC for industrial soil and arsenic in the sludge contained within the sump.

Removal action is being addressed under EABR11-I.

STATUS

CONTAMINANTS:
Cs-137, Arsenic
MEDIA OF CONCERN:
Soil, Sludge
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1998

Adamsite Storage Pit - Cluster 11
EABR11-H

SITE DESCRIPTION

The Adamsite Storage Pit, located within the Toxic Gas Yard at the Radioactive Material Disposal Facility (EABR11-I), was originally constructed in 1931 as a white phosphorus bulk storage facility. This site was a roofed concrete pit divided into two sections by a 24-inch–thick concrete wall. During 1958, drums of Adamsite were placed upright in the pit in two layers and buried in sand in the southwest half of the vault. A 1-ft-thick concrete cap was then poured over the top of the drums and sand. During 1983, 717 drums containing Adamsite were recovered from the pit. The pit was filled with a nonporous concrete material and covered with gravel during a 1996 removal action.

Sampling performed during Phase II of the Southern Bush River FFS identified arsenic in the soil at concentrations greater than the Maximum Reference Value and RBC for industrial soil. Cs-137 contamination in the soil is also a concern.

The soil contamination will be addresses as part of DSERTS site EABR11-I.

No further action is expected.

STATUS

CONTAMINANTS:
Cs-137, Arsenic
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRAs
CURRENT IRP PHASE:
RC - 1998

Ton Container Storage - Cluster 15
EABR15-C

SITE DESCRIPTION

Site EABR15-C includes the Empty Ton-Container Storage Site and Drummed Wastewater Storage Site. Review of historical aerial photography indicates that the storage of empty ton containers at this site began in the early 1960s. The empty containers, which previously held bulk chemical materials, were stored at this site during munitions-filling or mustard-distillation operations to await reuse or cleaning. These containers once held varying amounts of water, composed mainly of rain, condensation, and possibly residual from cleaning. In 1989, water from the ton-containers was transferred to 55-gallon drums. The drums were staged at the Drummed Wastewater Storage Site and were later removed. The drummed wastewater was not considered to be hazardous waste. Visual examination of the site indicates no observable releases of wastewater to the ground within the storage area.

Based on the RI, this site requires no further remedial action because the site does not pose a risk.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 2000

Tapler Pit Dredge Material Site - Cluster 18
EABR18-A

SITE DESCRIPTION

The Tapler Point Dredge Material Site is approximately 4.7 acres in size and is located on the southern portion of the peninsula, along the shoreline and outside the fenced area. Dredge material was placed into a marsh during the early 1940s when dredging was performed around and in the channel to the Bush River Dock. No information is available to indicate that the dredge material was contaminated; however, it is possible the dredged material was contaminated by chemical munitions wastes and degradation products during handling operations at the dock. Acetophenone (tear gas agent degradation product) at concentrations below the RBC for residential soils was detected in three surface soil samples during the initial RI.

UXO is the only problem at this site and will be addressed by non-IRP funds.

STATUS

CONTAMINANTS:
Tear Gas, Agent Deg. Product
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 2000

Chemical Munitions Burial Site (4) - Cluster 18
EABR18-B

SITE DESCRIPTION

Four Chemical Munitions Burial Sites lie on the southern portion of the Bush River peninsula. Historical aerial photographs from 1929 and the early 1940s show ground scar areas at these locations which indicate activity that destroyed vegetation. Based on procedures at the time and historical evidence of practices elsewhere, the Army may have used these sites for the disposal of deteriorated or improperly functioning munitions.

Mercury concentrations of up to 300 ppm were detected in the soil at this site during the RI; this site was also found to be experiencing significant erosion into Kings Creek. The potential ecological risk posed by the mercury contaminated soil was addressed in 1999.

UXO is the only problem at this site and will be addressed by non-IRP funds.

STATUS

CONTAMINANTS:
Mercury
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRAs
CURRENT IRP PHASE:
RC- 2000

Igloo Storage Areas - Cluster 18
EABR18-C

SITE DESCRIPTION

Site EABR18-C consists of seven igloo storage areas. Five of the seven igloos were constructed in 1941, the remaining two igloos were constructed in 1953. Each igloo is a grass-covered hemi-cylinder, with one turbine roof vent. The Army currently uses these igloos for the storage of conventional ammunition, high explosives, fuses, and bursters. During the RI, pesticides were detected in the groundwater at concentrations above the RBCs for tap water. Additionally, acetophenone (tear gas agent degradation product) was detected in the soil at concentrations below the RBCs for residential soil.

Based upon the RI, this site does not pose a risk and requires no further remedial action.

STATUS

CONTAMINANTS:
Pesticides, Tear Gas, Agent Deg. Product
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 2000

A-Field Test Site (2) - Cluster 18
EABR18-D

SITE DESCRIPTION

The A-Field Test Areas consists of two locations - the “Drop Bomb Tower” and the “Surveillance Bins”. The Army used these sites during the 1930s to test munitions as part of the A-Field Test Area. The Drop Bomb Tower was used for smoke and incendiary munitions tests; only four small concrete base pads for the tower legs remain. The Surveillance Bins possibly served as controlled points for environmental exposure testing and have since been demolished. No visible contamination exists at either site.

During the RI, acetophenone (tear gas agent degradation product) was detected in the soil at concentrations below the RBCs for residential soil.

Based upon the RI, this site does not pose a risk and requires no further remedial action.

STATUS

CONTAMINANTS:
Tear Gas, Agent Deg. Product
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 2000

Maintenance Yard - Cluster 35
EABR35-A

SITE DESCRIPTION

Several areas have been used by the Directorate of Public Works (DPW) for storage of bulk materials – the Maintenance Yard, which consists of three locations, is one of these areas. Aerial photographs indicate use of the Maintenance Yard for storage in the 1950s. The Army currently uses this site to store bulk construction-related aggregate (e.g., sand, gravel, crushed stone, rock), salvaged materials (e.g., scrap metal, plumbing materials, pipes, parts of appliances, plastics), and soils.

Sampling performed during the RI identified heavy metals in the groundwater at concentrations within the EPA's acceptable range for human health risks.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 2002

Building E2144/ 2148/ 2150 - Cluster 35
EABR35-B

SITE DESCRIPTION

Buildings E2144, E2148 and E2150 are located within a former fenced section in the northern portion of Northern Bush River. Although the dates of their construction are unknown, the three buildings existed as early as 1933 for storage of high explosives. Potential usage of all three buildings was categorized from 1936, 1945 and 1966 facility listings to include chemical munitions storage, general chemical storage and general storage. Since 1989, the Army has reportedly used building E2148 to store transformers known, or suspected, to contain PCBs. Building E2150 is reported to have stored (circa 1966) radioactive source sets and may have been used for the storage of transformers. Sampling performed during the RI identified pesticides and Arochlor 1260 in the soil at concentrations within the EPA's acceptable range for human health risks. Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Pesticides, Arochlor 1260
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 2002

Warehouse Storage Areas - Cluster 36
EABR36-A

SITE DESCRIPTION

The Warehouse Storage Areas consist of 17 warehouses located throughout the central portion of the peninsula, inside and outside of the current secured storage area. Seven of the 17 warehouses lie within Northern Bush River. The remaining ten warehouses are located within Southern Bush River. The Army built these warehouses in the early 1940s for general storage and storage of high explosives and ammunition. The Edgewood Area RI reported that lethal chemical agents were probably not stored in these warehouses; however, chemical materials (e.g., tear gas agents and raw materials for production) may have been stored. No information exists to indicate that leakage or spillage occurred in storage or handling operations. No contamination of concern has been identified.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 2002

Building 846 Waste Disposal Site - Cluster 36
EABR36-B

SITE DESCRIPTION

The Building 846 Waste Disposal Site encompasses building 846 and a paved parking lot to the northeast and is located outside the current secured storage area. Construction work in the 1980s to expand the parking lot uncovered the burned remains of gas masks and gas mask canisters in a small area at the very back edge of the site. This site was probably used as a burning site for wastes, which included gas mask canisters and portions of gas masks. The exact period of usage is unknown, but estimated to be from sometime prior to 1929 through 1940. Currently, the Army uses Building 846 for maintenance of construction-related vehicles and storage of utility equipment. No contamination of concern has been identified.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 2002

Railroad Yard - Cluster 1
EACC1A-A

SITE DESCRIPTION

The Railroad Yard is located in the north-central portion of the APG-EA, west of the Hoadley Road Gate. The Railroad Yard consists of multiple railroad sidings (areas used to store rail cars filled with raw materials, supplies and munitions), a locomotive storage and maintenance barn (Building E5762), and storage shed (Building E5760).

Ecological Risk Assessment sampling efforts were conducted in 1999. The Final Phase II RI Report was submitted in 2004. The Draft Final FS will be submitted in 2004 as well. Phase II RI sampling results indicate minimal impacts to site groundwater and surface water. Soils exhibited metals exceedances for both human health and the environment near Building E5762. From an ecological risk perspective, only a small number of sediment exceedances are expected based on elevated DDTr concentrations, including sediment from a spring location at sampling site RY-SD-10. The area of the former Building E5762 will be investigated to determine if the contamination detected prior to the building demolition still remains, and if so, the contaminated soil will be excavated and disposal of off-site. Sediment remediation will include stream diversion. The cost estimate for 2004 will not include the excavation of a second sediment DDTr hot-spot; although it may be included in the Final FS once BTAG review of the DF FS is obtained.

STATUS

CONTAMINANTS:
PAHs
MEDIA OF CONCERN:
Soil, Sediments
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS, RD
FUTURE IRP PHASE:
RA

PROPOSED PLAN

The Draft ROD for this site is anticipated for completion in FY04. The anticipated RA for this site will be excavation of contaminated sediments/soils and off-site disposal.

G Street Salvage Yard - Cluster 1A
EACC1A-B

SITE DESCRIPTION

The G St Salvage Yard consists of Bldg E5068, a concrete loading dock, a former fire training area and a salvage yard. The site is located in the north-central portion of the APG-EA, next to the RR Yard and west of the Hoadley Road Gate. From WWI until WWII the site was used as a railroad siding area, or area used to store rail cars filled with raw materials, supplies and munitions. Salvage yard operations were conducted at the site from WWII to the mid-1960s. From 1972 until 1978, a fire-training pit was located at the southeast corner of the salvage yard. Bulk construction materials were also stored at the site. Limited removal actions have been conducted at the G-St Salvage Yard that focused on removing surface debris and debris found in mounds within the project area.

In 1996, a temporary soil cover was placed over a portion of the site as part of a CERCLA Removal Action. The Final Phase II RI Report was submitted in 2004. The Draft Final FS for the site will be submitted in 2004. Risks exist at the site for soil and groundwater; however, the groundwater plume will be addressed as part of the West Branch Canal Creek Aquifer FS. Soil risks to human health are primarily defined by lead hot spots at the Former Fire Training Area; some of the hot spots are as deep as 14 ft (at or near water table). Additional potential risks to human health and the environment exist at the BRDA. Preliminary Remedial Goals (PRGs) have been calculated but have not yet been finalized.

The RAD Risk Assessment has been completed and the HHRA is complete. The Final RAD Risk Assessment has been incorporated into the Final 3 Sites RI. With current use, there is no human health risk from soil or radiologicals. Lead poses an ecological risk.

STATUS

CONTAMINANTS:
Lead
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, IRAs
CURRENT IRP PHASE:
RI/FS, RD, RA
FUTURE IRP PHASE:
RA

PROPOSED PLAN

The ROD for this site is anticipated for completion in FY05. Cost for BRDA excavation is the only cost shown on the CTC.

In order to return the site to unrestricted use , excavation within the contaminated soils area (surface and subsurface) at the G-Street Salvage Yard and off-site treatment and disposal is proposed. The Fire Training Area would be excavated to a depth of ~16 ft and the other areas to a depth of ~2 ft.

The anticipated remedial action for the BRDA involves excavation of the pit (at a total depth of 9 ft) and off-site disposal. Due to the potential UXO/CWM present in the BRDA pit, this alternative would be conducted under strict safety requirements.

DM Filling Plant - Cluster1D
EACC1D

SITE DESCRIPTION

The DM Filling Plant is located in the APG-EA, west of the Magnolia Road intersection with Alley Road. Existing buildings within the area include Buildings E5635, E5637, E5639, E5641, E5643, E5645, and E5648. The DM Filling Plant was used for DM candle filling and assembly during 1942 and 1943. Bldg E5648 was the primary production building and used sumps and/or tank pits for the DM manufacturing. Additional buildings were used for a variety of filling/loading purposes including smoke mixing and blending. Bldg E5641 was also used for loading button bombs with a pyrotechnic mixture of red phosphorus, potassium chlorite, and Freon. Two animal holding pens are located at the southern end of the DM Filling Plant Area.

The Final Phase II RI Report was submitted in 2004. The Draft Final FS for the site will be submitted in 2004. The HHRA did not indicate any human health exceedances for the industrial scenario. The ecological risk assessment indicates very localized risk to terrestrial organisms, primarily due to arsenic contamination. The PRGs for ecological risk have been calculated but have not yet been finalized. The RAD risk assessment has been updated (no risk) and the HHRA is complete. The Final RAD risk assessment has been incorporated into the Final RI. The results of the additional "nature and extent" sampling revealed the presence of more widespread arsenic contamination than originally expected. Elevated arsenic concentrations exist in the northern and central drainage ditches.

STATUS

CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS, RD
FUTURE IRP PHASE:
RA

PROPOSED PLAN

The ROD for this site is anticipated in FY04. The anticipated remedial action at this site involves excavation based on screening and confirmatory sampling, as well as off-site transportation and disposal. The contamination is located within three areas and would be excavated to a depth of approximately 1 ft.

Building 87 Complex - Cluster 1E
EACC1E

SITE DESCRIPTION

The Building 87 Complex (Pilot Plant Complex) is located in a double security-fenced area at the northwest corner of the intersection of Fleming Road and Alley Road. The site consisted of buildings (E5616, E5617, E5618, E5626, E5627, E5632 and E5633) that were constructed around WWI and used for chemical manufacturing during the war. CC2, GB, GA, GD, BX, NM, VX and B-1 dye were all produced at the Building 87 Complex. The area was also used for bulk storage and chemical transfer of agents for use in other R&D facilities. The 5-acre complex has not been active as a process engineering facility since 1986 and has been abandoned. Since FY97, the Building 87 Complex demolition has been funded under Chemical Agent Demilitarization Disposal Defense (CADDD). All of the buildings at this site have been demolished, and the sumps have been filled.

The potential for environmental impact is largely due to the activities using chemicals such as chlorinated solvents and PCBs.

STATUS

CONTAMINANTS:
PCBs, PAHs, VOCs
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, IRA
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded).

Building E5604 Area - Cluster 1F
EACC1F-A

SITE DESCRIPTION

The Building E5604 Area is located in the APG-EA on the north side of Fleming Road between Alley Road and 32nd Street. Building E5604 was constructed during WWII for chemical munitions filling. In the late 1960s, mask and filter manufacturing operations were located at Building E5604. Manufacturing activities have not been performed at Building E5604 in recent years; however, testing of individual and collective protection filters was conducted until 1988.

Explosives and agent degradation byproducts were not detected in surface or subsurface soil samples onsite. Arsenic levels (8.9 mg/kg) in the surface soil exceeded both industrial RBCs and background ranges.

STATUS

CONTAMINANTS:
VOCs, Arsenic
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). Soil removal is anticipated.

Building 80 Series Smoke Labs - Cluster 1F
EACC1F-B

SITE DESCRIPTION

The Building 80 Series Smoke Laboratories are located in the APG-EA on the north side of Fleming Road between Alley Road and 32nd Street (6 acres). The Building 80 Laboratories were constructed in 1918 and 1919 and were used as smoke laboratories through at least 1944. Activities at these laboratories would have been similar to latter day pyrotechnic R&D work. Arsenic concentrations (21.1 mg/kg) in site soils exceed industrial RBCs and background ranges.

While no agent degradation byproducts were found in site soils, nitrobenzene (5.79 mg/kg) was detected in the surface soil in an area of stressed vegetation onsite.

STATUS

CONTAMINANTS:
VOCs, Arsenic, Nitrobenzene
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). Soil removal is anticipated.

Building E5185 WWII Mustard Filling Plant - Cluster 1G
EACC1G-A

SITE DESCRIPTION

The Building E5185 WWII Mustard Filling Plant is located south of Magnolia Road between 34th Street and Hoadley Road. Building E5185 was originally constructed as a WWII Mustard Plant, but was used for a variety of purposes from 1945 until the mid 1960s, including supply handling and warehousing, production and packing of filters and masks and equipment cleaning and layaway. Until 1975, Building E5185 was also an active shop and fabrication facility. In recent years, the Ordnance School has used Building E5185 as a vehicle maintenance training facility.

Five sediment samples taken during the RI sampling exceeded sediment screening levels and background ranges for pesticides (maximum detection – 4,4'-DDE at 330 mg/kg).

STATUS

CONTAMINANTS:
Pesticides, VOCs
MEDIA OF CONCERN:
Groundwater, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). Soil removal is anticipated.

Building E5188 White Phosphorus Filling Plant - Cluster 1G EACC1G-B

SITE DESCRIPTION

Building E5188 is located in APG-EA, south of Magnolia Road between 32nd and 34th Streets. The wastewater from E5188 drained into the chemical sewer, which discharged into the wastewater ponds (Phossy Pond) located southwest of the building. A wastewater sump was located at the west end of the building, and a sump used to trap white phosphorus (WP) and plasticized white phosphorus (PWP) was located along the north wall of the building.

Building E5188 was constructed in 1940 and was used for filling munitions with Sulfur trioxide/chlorosulfonic acid (FS, a smoke mixture), CNB, and CNS (riot agents). After World War II, the building was used for filling WP and PWP munitions for the Korean and Vietnam wars. Chemicals stored within or near the building include FS, CNB, CNS, chloroform, chloropicrin, carbon tetrachloride, benzene, xylene, and caustic.

STATUS

CONTAMINANTS:
Pesticides, Metals
MEDIA OF CONCERN:
Groundwater, Sediment, Surface Water
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, IRA
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA

A PWP scrubber tower was removed from an area north of the building in 1995. The WP sump located along the north wall of the building was removed at the same time.

Solid WP was present in the sump and in water collected from the sump. Only pesticides and metals (chromium, copper, and lead; zinc in surface water only) were detected above action levels in sediment and surface water collected from the site.

PROPOSED PLAN

Surface media sampling (soil, surface water, and sediment) in the vicinity of this site will be completed in early April 2004. These data will be used to determine if remedial action will be required. The Draft RI and Draft FS reports will both be completed in FY04.

1937 Mustard Disposal Pit - Cluster 1H
EACC1H-A

SITE DESCRIPTION

The 1937 Mustard Disposal Pit is located in the APG-EA approximately 400 ft west-southwest of Building E5440 in the Mustard Plant Area. Large scale manufacturing of mustard after WWII was initiated in the Mustard Plant in 1937. The Mustard Disposal Pit was used to receive "wild run" batches of mustard. The site may have also been used for the disposal of other chemical wastes.

During RI sampling, both arsenic (5.7 mg/kg) and beryllium (1.6 mg/kg) were detected in surface soils at concentrations exceeding industrial RBCs and background ranges. No mustard has been detected at this site.

STATUS

CONTAMINANTS:
VOCs, Metals
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). Soil removal is anticipated.

WWII Chlorine Plant - Cluster 1H
EACC1H-B

SITE DESCRIPTION

The WWII Chlorine Plant is located in the APG-EA east of the West Branch Marsh along the west side of 35th Street. Plant operations to produce chlorine and caustic soda were conducted from 1942-1944. After WWII and until 1968, the building was used as a hydrogen recovery unit and filling plant. The Chlorine Plant facilities were demolished in 1969.

During RI surface soil sampling, PAHs, metals, and pesticides were detected in concentrations exceeding both industrial RBCs and background ranges. Mercury (4.3 mg/kg) was also detected in sediment samples at levels above the respective sediment screening levels and background ranges. A CERCLA Removal Action was conducted at this site during 1995 and 1996 to remove potentially contaminated surface material.

STATUS

CONTAMINANTS:
VOCs, Metals, PAHs, Pesticides
MEDIA OF CONCERN:
Groundwater, Soil, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE RI PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded).

Building E5483 Protective Clothing Laundry - Cluster 1H EACC1H-C

SITE DESCRIPTION

The Building E5483 Protective Clothing Laundry is located south of Williams Road and immediately north of the Mustard Disposal Pit Area. Building E5483 was constructed in 1951 on the site of a former ton container steam out facility. Uses of Building E5483 from 1951 to the 1960s are not known although the original use was reported as a degreasing facility. Protective clothing laundry equipment was installed in the late 1960s; operations ceased in 1968.

During RI surface soil sampling, benzo(b)fluoranthene (12 mg/kg) and arsenic (11.1 mg/kg) were detected at concentrations exceeding background ranges and RBCs. Chrysene (0.430 mg/kg), several metals, and pesticides were detected in sediment samples at levels exceeding screening levels and background ranges. There does not appear to be any risk to human health or the environment at this time, given current and reasonably anticipated land uses.

STATUS

CONTAMINANTS:
VOCs, PAHs, Metals, Pesticides
MEDIA OF CONCERN:
Groundwater, Soil, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Phosgene Plant Area - Cluster 1H
EACC1H-D

SITE DESCRIPTION

The Phosgene Plant Area is located in the APG-EA between Hoadley Road and 35th Street. Prior to the start of WWII, phosgene manufacturing operations were limited to a small group of buildings located north of Hanlon Road in the Phosgene Plant Area. Most of the WWII phosgene plant buildings were demolished in the 1960s. Buildings E5317, E5327, and E5365 are the only remaining structures in the Phosgene Plant Area.

No analytes were detected at concentrations exceeding industrial RBCs or background ranges during RI sampling. There does not appear to be any risk to human health or the environment at this time, given current and reasonably anticipated land uses.

STATUS

CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Building 103 Area Chemical Plant/ Dump - Cluster 1H
EACC1H-E

SITE DESCRIPTION

The Building 103 Area Chemical Plant/Dump Site is located in the APG-EA at the northwest intersection of Hoadley Road and Williams Road. Building 103 was constructed in 1918 and was demolished in the 1960s. The Building 103 Dump was located on the south side of Williams Road, north of the former U.S. Army Technical Escort Unit Building E5422. During WWI, the Building 103 Chemical Plant was used for the production of chloropicrin and for pilot plant production of clothing impregnating materials and ethylene. The Building 103 Dump was listed on historical maps as a sandpit and was used as a dumpsite for debris, miscellaneous wastes, and possible chemicals.

A ROD for the Building 103 Area Chemical Plant/Dump Site was signed in 1995. Construction of the Building 103 Dump Cap began in 1997 and was completed in 1999. The Final Remedial Action Report, Dump Site "As Built" Drawings, and the Cap/Cover Maintenance Manual were completed in FY00. Long term monitoring and operation and maintenance at the site started in 2001.

Monitoring has shown that the groundwater plume is stable.

STATUS

CONTAMINANTS:
VOCs, Debris, Miscellaneous Waste
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRAs, RD, RA
CURRENT IRP PHASE:
RIP (1999) with LTM
FUTURE IRP PHASE:
RIP (1999) with LTM

PROPOSED PLAN

Continue long term monitoring and operation and maintenance through the next Five-Year Review for the Edgewood Area in FY07.

Experimental Chemical Plant Area - Cluster 1H
EACC1H-F

SITE DESCRIPTION

The Experimental Chemical Plant Area consists of pilot plants 622 (Building E5560), 642 (Building E5485), 643 (Building E5481, E5487, E5489), 644 (E5476), E5380, and Building 648 (demolished). These buildings were used for numerous purposes including chemical agent production, clothing impregnation, adamsite air drying, and testing and laboratory activities. A West Branch Canal Creek Source Definition Study will be required to further characterize the area.

A CERCLA Removal Action was conducted during 1995 and 1996 to remove potential source material dumped along the banks of Canal Creek.

Elevated levels of arsenic (~1,600ppm) and mercury (~800ppm) were detected in surface soils behind Building E5476, in an area near a discharge pipe, during risk assessment sampling conducted in FY04. The levels detected are the highest ever detected in the Edgewood Area (based on the datasets used for ecological risk assessments).

STATUS

CONTAMINANTS:
VOCs, Metals
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, IRA
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

As a result of the soil detections, a non-time critical removal action will be recommended.

Mustard Plant Area - Cluster 1H
EACC1H-G

SITE DESCRIPTION

The Mustard Plant Area occupies the entire south of Williams Road including several outlying structures north of Williams Road. Building E5540 of the Mustard Plant Area was used to produce mustard by high temperature process reactors during WWI. After WWI, Building E5540 was dismantled and Building E5450 was constructed as a mustard manufacturing plant. This plant produced mustard during 1949 and 1959 and was demolished in the early 1970s.

High concentrations of arsenic (255 mg/kg) have been detected in the soils, in addition to concentrations of mustard and nerve agent degradation products in groundwater.

STATUS

CONTAMINANTS:
Arsenic, Agent Deg. Products
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). Soil removal is anticipated.

Building 106/107 Area - Cluster 1I
EACC1I-A

SITE DESCRIPTION

The Building 106/107 Area is located in the APG-EA west of Hoadley Road, between Fleming and Hanlon Roads. Buildings 106 and 107 were constructed around the end of WWI. The buildings were used as a booster station for pumping water from the Bush River into the plants area. Building 106 was also used for ship hull paint storage, hay storage, and rabbit holding. Both buildings were demolished during the 1950s.

During RI soil sampling, elevated concentrations of SVOCs, PAHs, arsenic, and the presence of the explosive PETN were all detected.

STATUS

CONTAMINANTS:
VOCs, SVOCs, PAHs, Metals, PETN
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded).

Building 113 Gas Instruction Chamber - Cluster 1I
EACC1I-B

SITE DESCRIPTION

The Building 113 Gas Instruction Chamber is located in the APG-EA west of Hoadley Road, between Fleming and Hanlon Roads. Building 113 was constructed during WWI as a gas instruction school. The most commonly used training gasses at the chamber were probably tear gasses, including CN. It is possible that the gas instruction school used bromobenzylcyanide, radioactive chemicals, and small quantities of lethal agents such as mustard, phosgene, and chloropicrin. Use of the facility as a gas chamber continued until the mid-1930s. The facility was demolished in the early 1960s.

Elevated concentrations of PAHs and arsenic have been detected in site soils.

STATUS

CONTAMINANTS:
PAHs, Metals, VOCs
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded).

Laboratory Toxic Waste Disposal Pits -Bldg 30 - Cluster 1J EACC1J

SITE DESCRIPTION

The Laboratory Toxic Waste Disposal Pits are located north of Fleming Road, between Hoadley Road and 32nd Street. The area is divided into three disposal pit operations associated with the laboratories at Building 30. Disposal of laboratory wastes at the Building 30 pits was performed during the WWI era until at least the 1940s.

During RI soil sampling, arsenic (13.6 mg/kg) was detected at concentrations exceeding both industrial RBCs and background ranges.

STATUS

CONTAMINANTS:
VOCs, Metals
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05. Waste (including containers) and soil removal is expected, to further reduce the potential adverse impact to Canal Creek.

Canal Creek Marsh and Landfill - Cluster 1K
EACC1K

SITE DESCRIPTION

The Canal Creek Marsh and Landfill is located throughout the APG-EA Canal Creek Area, but this DSERTS site consists of the western portion of the Canal Creek Marsh. The Canal Creek Marsh was used as a receptor for liquid and solid wastes from 1917 until recent decades. Liquid wastes were generally discharged from chemical sewer outfalls. Chemicals produced in the plants near the West Branch of Canal Creek include chlorine, CN, clothing-impregnating material, arsenicals, nerve agents, mustard, and organic solvents. Solid wastes were generally disposed along the edges of the East Branch marshes and consisted largely of concrete and steel construction debris, discarded process equipment, and miscellaneous items.

During RI sampling, numerous analytes, including VOCs, SVOCs, pesticides/herbicides, and PCBs were detected in sediment samples at concentrations that exceed background ranges and sediment screening levels. Two white phosphorous detections (0.298 mg/kg), which may be residual material from activities in the Phossy Water Ponds, were also detected in sediment samples from the site.

STATUS

CONTAMINANTS: VOCs, SVOCs, Pesticides, Herbicides, PCBs, White Phosphorus

MEDIA OF CONCERN:

Groundwater, Soil, Sediment

RRSE RATING: High

COMPLETED IRP PHASE:

PA/SI

CURRENT IRP PHASE:

RI/FS

FUTURE IRP PHASE:

RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Building 503 Smoke Pot Plant - Cluster 1L
EACC1L-B

SITE DESCRIPTION

The Building 503 Smoke Pot Plant (Building E5265) is located in the APG-EA northeast of the intersection of Hoadley and Nobel Roads. Building E5265 was constructed during WWI to house a filling plant for large caliber shells. The plant was remodeled as a smoke filling plant in the later part of 1942. Since WWII, Building E5265 has been used as an R&D facility for loading pyrotechnic smoke mixtures, including the pilot scale production of colored smoke.

STATUS

CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Old Hospital and Administrative Area - Cluster 2A
EACC2A

SITE DESCRIPTION

The Old Hospital and Administration Area is located in the northern portion of the Installation, west of Wise Road (close to the installtion boundray). Structures at the Old Hospital and Administration Area were built during WWI and pre-WWII eras. The area was serviced by two storm sewers and a sanitary sewer system.

During RI sampling, pesticides and mercury were detected in sediments above screening levels and background ranges. Endrin and copper were detected in the surface water at concentrations exceeding AWQC and background ranges. Nerve agent degradation byproducts were also detected in a surface water sample at the Old Hospital and Administration Area (MPA at 86.2mg/L, IMPA at 41.6mg/L).

STATUS

CONTAMINANTS: VOCs, Pesticides, Metals, Nerve Agent Deg. Products

MEDIA OF CONCERN: Groundwater, Surface Water, Sediments, Soil

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Building E5023 WWI White Phosphorus Filling Plant - Cluster 2B EACC2B

SITE DESCRIPTION

Building E5023 WWI White Phosphorous (WP) Filling Plant site is located in the area southwest of the intersection of Wise Road and Magnolia Road. Shells and grenades were filled at this site during WWI. Immediately following WWI, the facility was used for production to fill emergency WP orders. The use of Building E5023 for WP filling continued through WWII. The filling plant was rendered inactive during the 1960s and demolished.

During RI sampling, benzo(a)pyrene (2.0 mg/kg), arsenic (10.6 mg/kg), and beryllium (2.8 mg/kg) were detected in the surface soil at concentrations exceeding industrial RBCs and background ranges. Metals and pesticides were also detected in sediments at concentrations exceeding screening criteria and background ranges. White phosphorus (0.0024 mg/kg) was also detected in site sediments.

STATUS

CONTAMINANTS: VOCs, PAHs, Metals, Pesticides, White Phosphorus

MEDIA OF CONCERN:
Groundwater, Soil, Sediment

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS (funded)

FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Building E5238 Clothing Impregnation Facility - Cluster 2C EACC2C

SITE DESCRIPTION

The Building E5238 Clothing Impregnating Facility is located in the APG-EA west of the intersection of Fleming Road and 4th Street. Building E5238 was constructed in 1941 as a clothing impregnation facility and was operated during most of 1942. A 1,1,2,2-tetrachloroethane solvent process was used for the majority of impregnation activities. Protective clothing laundering was also performed in Building E5238.

Elevated metal concentrations have been detected in site soils. Groundwater samples have indicated the presence of chlorinated VOCs at low concentrations.

STATUS

CONTAMINANTS:
VOCs, Metals
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Laboratory Toxic Waste Disposal Pits - Cluster 2D
EACC2D

SITE DESCRIPTION

The Laboratory Toxic Waste Disposal Pits are associated with laboratories at Buildings 30, E5183, and E3330 in the APG-EA. The primary wastes disposed in the pits would have included mustard, nitrogen mustards, lewisite, and chloropicrin. Contaminated items such as laboratory glassware, equipment, packaging materials, protective equipment, and laboratory benches may have also been disposed in the pits.

Elevated metal concentrations have been detected in the surface soil, and chlorinated VOCs and SVOCs have been detected in subsurface soils. Pesticides and metals have been detected in site sediments at concentrations that exceeded screening levels.

STATUS

CONTAMINANTS:
VOCs, Metals, SVOCs, Pesticides
MEDIA OF CONCERN:
Groundwater, Soil, Sediments
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Noble Road Incinerators - Cluster 2E
EACC2E

SITE DESCRIPTION

The Noble Road Incinerators are located in Buildings E5292 and E5294 in the APG-EA on the south side of Noble Road. Cluster 2E also includes the Canal Creek Marsh and Landfill (East). The Building E5292 incinerator was constructed in 1918 and the Building E5294 incinerator was constructed in the early 1940s. Both incinerators were used to burn a variety of wastes including animal carcasses, classified documents, mustard distillation residues, and general sanitary wastes. Waste ashes from the facilities were deposited in a landfill along the East Branch immediately south of the site. Incineration operations were halted in the 1950s or 1960s.

During RI sampling, arsenic was detected in soil (26.9 mg/kg) and ash (32.5 mg/kg) samples at concentrations exceeding the carcinogenic industrial RBCs and background ranges.

STATUS

CONTAMINANTS:
VOCs, Metals
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Building 99 (E5032) Experimental Filling Plant - Cluster 2F EACC2F

SITE DESCRIPTION

The Building 99 (E5032) Experimental Filling Plant is located northwest of the intersection of Hoadley and Magnolia Roads. Building 99 was constructed during WWI for use as an incendiary bomb filling plant. During WWII, the building was used as a pilot plant for development of a dry WP filling process. Other filling operations conducted at the plant have involved mustard, triethyl aluminum, WP-mustard mixture (HP) filling, GA filling, and thickening of mustard with methylmethacrylate polymer. Filling operations at Building 99 were stopped in 1981 and the building was demolished in 1998. There are 8 sumps, one tank/vault, and one possible UST located at Building 99.

High concentrations of VOCs have been found in the Canal Creek Aquifer in and around the area of the former Building 99. High concentrations of arsenic have also been found in the soils at the former Building 99. Draft and Draft Final versions of a FS Work Plan for Building 99 have been submitted for review. In 1999, screening-level soil sampling as well as surface and shallow subsurface soil sampling was performed. In FY03, soil samples required by the BTAG were taken in support of a screening level ecological risk assessment. In FY03 samples found no sumps in the site.

Additional sampling was completed at the site in 2003.

STATUS

CONTAMINANTS:
VOCs, Metals
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded), RD
FUTURE IRP PHASE:
RA

PROPOSED PLAN

The RI/FS report is expected in FY05. Soil removal is anticipated.

Building E5103 Photographic Laboratory - Cluster 2G
EACC2G

SITE DESCRIPTION

The Building E5103 Photographic Laboratory is located in the southwest corner of Wise Road and Bond Road. The Photographic Laboratory was constructed in 1965 to replace the photo and duplicating facility in the Old Hospital and Administration Area. Activities at Building E5103 include a communications center and a photographic laboratory. Wastes produced at Building E5103 are typical of photographic laboratories. Wastewater containing spent photographic chemicals is discharged through the sanitary sewer to the wastewater treatment plant.

STATUS

CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Building 501 Filling Plant/ E5100 Lab- Cluster 2H
EACC2H-A

SITE DESCRIPTION

The Building 501 Filling Plant and E5100 Laboratory are located between Fleming Road and the East Branch Canal Creek, near the southeast intersection of Fleming and Webster Roads. The Building 501 Filling Plant was constructed during WWI and used as a chemical munitions filling plant until 1942. The plant was converted during WWII to fill WP rounds. The filling plant and WP tanks were demolished in the 1960s. The Building E5100 Laboratory was constructed in the late 1960s at the 501 Filling Plant site, and is used for the product assurance testing of chemical agents. Wastes produced from Building E5100 include agent decontamination solutions and materials potentially contaminated with agent, including charcoal filter material from air filtering systems.

SVOCs, pesticides, and metals have been detected in site sediments in concentrations that exceed screening levels and background ranges.

STATUS

CONTAMINANTS:
VOCs, SVOCs, Pesticides, Metals
MEDIA OF CONCERN:
Groundwater, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

WWI Shell Dumps - Cluster 2H
EACC2H-B

SITE DESCRIPTION

The WWI Shell Dumps are located in an area bounded by Hoadley Road, Blackhawk Road, 4th Street, and Webster Road. Buildings E5158, E5165 and E5179 were constructed in the WWI era or used as storage dumps for empty and filled chemical shells. Occasional leak testing of filled materials was performed by placing rounds in a rack, turning the rounds upside down and observing for leakage. Shells and other materials were stored in these buildings during the 1920s and 1930s, including paints and degreasing compounds. Igniters, smoke pots, tear pots, CN and CN/DM grenades, and 5-inch Navy shells were assembled, painted and packed in the shell dump buildings during WWII. Offices, warehouses, and small maintenance activities have occupied the buildings since WWII.

During RI sampling, numerous PAHs and arsenic were detected in site soils at concentrations exceeding industrial RBCs and background ranges.

STATUS

CONTAMINANTS:
VOCs, PAHs, Metals
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). Soil removal is anticipated.

Filling Plant #1 & 2 - Cluster 2H
EACC2H-C

SITE DESCRIPTION

The Filling Plants Numbers 1 and 2 are located east of Hoadley Road, from the WWI Shell Dumps (DSERTS No. EACC2H-B) to Noble Road. Filling Plants Numbers 1 and 2 were used briefly during WWI for filling munitions with chemical agents. Wastewater from the filling plant operations was discharged through chemical sewer lines to the East Branch. Filling Plant No. 2 was demolished in the early 1930s; Filling Plant No. 1 was demolished some time between 1938 and 1941. Portions of foundations and ventilation shafts from the former filling plants and air scrubber towers can still be seen in the area.

Soil borings have detected chlorinated organic compounds in the 0 – 5-foot soil depth. Groundwater samples have also indicated the presence of chlorinated VOCs at concentrations ranging from 1 mg/L to 45 mg/L.

STATUS

CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Airfield Area (Wiede Field) - Cluster 2I
EACC2I-A

SITE DESCRIPTION

The Airfield Area is located in the APG-EA along the east side of Wise Road. The Airfield has been operated since shortly after WWI. The original turf runway and taxiways were regraded, lengthened, and paved sometime between 1938 and 1940. Aircraft maintenance and storage hangers, a fuel pump house and additional fueling facilities, and additional storage buildings are located in the area. The National Guard is the current tenant of Weide Field.

Benzo(a)pyrene and arsenic have been detected in site surface soils at concentrations that exceed industrial RBCs and background ranges.

STATUS

CONTAMINANTS:
VOCs, Metals, PAHs
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Old Shop and Motorpool Area - Cluster 2I
EACC2I-B

SITE DESCRIPTION

The Old Shop and Motorpool Area is located at the northwest end of Weide Field on both sides of Wise Road. Facilities in the area have included a locomotive maintenance shop, metal working shops, a painting shed, a motorpool, a service station and a dye shop. Some of these buildings were demolished during the 1960s and 1970s.

PCBs have been detected in the subsurface soil at concentrations less than 10 ppb. PAHs and pesticide concentrations in site sediments exceed screening levels and background ranges. White phosphorus (0.065 mg/kg) has also been detected from sediment samples taken onsite.

STATUS

CONTAMINANTS: VOCs, PCBs, PAHs , Pesticides, White Phosphorus

MEDIA OF CONCERN:

Groundwater, Soil, Sediments

RRSE RATING:

Medium

COMPLETED IRP PHASE:

PA/SI

CURRENT IRP PHASE:

RI/FS (funded)

FUTURE RI PHASE:

RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded).

Laboratory Toxic Waste Disposal Pits - Bldg E3330 - Cluster 3A EACC3A

SITE DESCRIPTION

The Laboratory Toxic Waste Disposal Pits consist of three pits located on the eastern side of Building E3330 north of Beach Point Road. Disposal of laboratory wastes at the Building E3330 pits was performed from approximately 1943 until the late 1940s. The primary wastes disposed in the pits would have included mustard, nitrogen mustards, lewisite and chloropicrin. Contaminated items such as laboratory glassware, equipment, packaging materials, protective equipment, and laboratory benches may have also been disposed of in the pits. The extent of chemical agent munitions disposal in these pits is unknown.

Arochlor-1248 and arsenic have been detected in site soils at concentrations exceeding industrial RBCs and background ranges. Low concentrations of chlorinated VOCs have also been detected in the groundwater.

STATUS

CONTAMINANTS:
PCBs, VOCs, Metals
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE RI PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Building E2100 Laboratory - Cluster 3B
EACC3B

SITE DESCRIPTION

The Building E2100 Laboratory is located on the south side of Bush River Road, east of 6th Street. Building E2100 was constructed in 1967 for use as a combined office and laboratory facility. Most of the laboratory work consists of analysis of environmental samples. Building E2100 has been connected to the post sanitary sewer system since the laboratory was built. Hazardous waste accumulation points and 90-day hazardous waste storage sites for the laboratory are located within the building and in storage containers/facilities east of the building.

RI sampling results did not indicate a significant contamination at the site, or contamination from spillages in the area of the hazardous materials storage sheds.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Building E32XX/E3100/3081 Medical Research Labs - Cluster 3C EACC3C

SITE DESCRIPTION

The Building E32XX/E3100/E3081 Medical Research Laboratories are located along the east side of Rickets Point Road between the Family Housing Area and Bldg E3300. These buildings were constructed during WWII over the former Fort Hoyle Training Site. A hospital complex originally occupied the site of Bldg E3100 which was built in the 1960s as a medical research laboratory. Bldg E3081 was constructed in the 1970s and also was used as a medical research laboratory. Bldg E32XX structures were originally used for medical research; presently these structures are used as chemistry research laboratories. Primary mission responsibilities at these facilities were R&D activities related to chemical warfare. All of these buildings were serviced by chemical and sanitary sewer systems. Most solid wastes generated at the laboratories were incinerated in on-site incinerators. Hazardous waste storage sites and chemical sewer systems represent potential sources of contamination from agent-related work performed at the site.

STATUS

CONTAMINANTS:
VOCs, PAHs, Pesticides, Metals
MEDIA OF CONCERN:
Groundwater, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded), RD
FUTURE IRP PHASE:
RA

RI sediment sampling results indicate potentially significant PAH, pesticide, and metal concentrations. Low level detections of bromodichloromethane (3 mg/L) and chloroform (12 mg/L) were also detected in surface waters onsite.

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). Soil removal is anticipated.

Building E3160 Complex - Cluster 3D
EACC3D

SITE DESCRIPTION

The Building E3160 Complex is located east of Building E3100 at the end of North Kings Creek Road. Structures in this complex were built during WWI. Building E3160 was originally used as a medical research physics laboratory primarily for wound assessment. A variety of research has been performed in other complex facilities including fuel mixing and toxic laboratory work, incendiary research, and animal studies. Current activity at the site is low; smaller structures are either abandoned or used for storage.

Pesticides and metals have been detected in site sediments at concentrations exceeding screening levels and background ranges.

STATUS

CONTAMINANTS:
VOCs, Pesticides, Metals
MEDIA OF CONCERN:
Groundwater, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, IRA
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded).

Building E3300/E3330 Laboratory Complex - Cluster 3E EACC3E

SITE DESCRIPTION

The Building E3300/E3330 Laboratory Complex is located along the east side of Ricketts Point Road north of Beach Point Road. Original facilities at the site were constructed during 1941 and 1942. The last of the structures was built in the mid-1960s. Building E3300 was built in 1965 and was referred to as the "super toxic laboratory." The complex was built for R&D work related to chemical warfare. Activities at the complex have involved the use of toxic chemical agents, agent detection chemicals, decontamination chemicals, explosive compounds, pyrotechnic mixes and obscurant smokes.

DDT and its byproducts were detected at levels that exceeded sediment screening levels onsite during RI sampling. Chlorinated VOCs were also detected in surface water samples.

STATUS

CONTAMINANTS:
VOCs, Pesticides
MEDIA OF CONCERN:
Groundwater, Surface Water, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded).

Building E35XX Area - Cluster3F
EACC3F

SITE DESCRIPTION

The Building E35XX Area is located in the area southeast of the intersection of Ricketts Point Road and Beach Point Road. Many of the buildings in the Building E35XX Area were constructed during the WWII era. The area contains a number of small laboratories and environmental test/surveillance chambers where a variety of equipment and chemical materials have been tested, including agents. Areas of known or possible contaminant release in the Building E35XX Area are the former waste storage area at Building E3516, the Building E3526 flammable material and oil storage facility, and the former drum rack south of Building E3546.

RI sampling revealed chlorinated VOC contamination in the subsurface soil.

STATUS

CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded), RA(O)
FUTURE IRP PHASE:
RA(O)

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). MNA is anticipated.

Building E360X/E361X/E362X Area - Cluster 3G
EACC3G

SITE DESCRIPTION

The Building E360X/E361X/E362X Area is located along the north side of Beach Point Road, east of the Building E3330 Laboratory. Structures in this area were built after WWII and have been used for offices, laboratories and material storage. There is insufficient information concerning the types of laboratory and R&D work conducted in this area; however, some of the reported laboratory work involved the use of pyrotechnic materials.

RI sampling revealed elevated arsenic concentrations in surface soils (7.3 mg/kg), and elevated metals concentrations in site sediments and surface waters.

STATUS

CONTAMINANTS:
VOCs, Metals

MEDIA OF CONCERN: Groundwater, Soil, Sediment, Surface Water

RRSE RATING:
Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS (funded)

FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded).

E3560 Test Chamber Complex - Cluster3H
EACC3H

SITE DESCRIPTION

The Building E3560 Test Chamber Complex is located along the south side of Beach Point Road between Building E35XX Area and Building E3570. The complex was built in 1954 as a testing facility for confined detonation of explosively configured items. Reconstruction of the original test chamber was required in 1966 after an alcohol vapor explosion destroyed the chamber. Principal chemicals used in the test chamber tests include chemical agents and solutions to decontaminate the chamber after testing.

RI soil sampling revealed the presence of toluene, PAHs, pesticides, and metal concentrations in the surface soil; however, these concentrations did not exceed industrial RBCs.

STATUS

CONTAMINANTS:
VOCs, PAHs, Pesticides, Metals
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Building E3570 Assembly Plant - Cluster 3I
EACC3I

SITE DESCRIPTION

The Building E3570 Assembly Plant is located along the south side of Beach Point Road, east of the Building E3560 Test Chamber Complex. This facility was constructed in 1953 as a munitions assembly plant. It has been used for production of bomb clusters and for vehicle contamination testing. Building E3570 has also been used as a laboratory. Machining and assembly-type work has continued at the site into recent years. No information is available concerning the type of laboratory work performed at Building E3570 or the composition of material previously stored at the drum rack.

RI sampling did not indicate significant soil contamination at the site with the exception of the detections of MPA (1.71 mg/kg) and IMPA (6.7 mg/kg) which are nerve agent degradation byproducts. Both MPA and IMPA are highly soluble and mobile.

STATUS

CONTAMINANTS:
VOCs, Nerve Agent Deg. Product
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded).

Building E3580 Pyrotechnic Loading Facility - Cluster 3J EACC3J

SITE DESCRIPTION

The Building E3580 Pyrotechnic Loading Facility is located southwest of the intersection of Beach Point Road and 57th Street. Most of the site structures at this facility were built in 1951 and 1952. The facility was placed into service in 1952 and has been used continuously for R&D and evaluation of pyrotechnic mixtures, loading procedures, and munitions into which the munitions are loaded. Work cubicles along both sides of the building are used for experimental pyrotechnic research and small-scale item fabrication. Pyrotechnic mixtures loaded into munitions have included irritant and incapacitating chemical agents such as CS, CN, BZ and DM. Small quantities of explosives have also been handled onsite including TNT, RDX, tetryl, and PETN. Other materials used onsite included pyrotechnic fuel materials, oxidizers, and dyes. Prior to 1896, decontamination and cubicle washout wastewater were discharged to the ground surrounding the building.

RI soil sampling did not indicate any significant contamination at this site. Two CERCLA Removal Actions have previously been conducted at this site.

STATUS

CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, IRAs
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Building E37XX Complex - Cluster 3K
EACC3K-A

SITE DESCRIPTION

The Building E37XX Complex is located north of the intersection of Beach Point Road and 57th Street. Principal structures within this complex include Building E3724, E3726, and E3728. These structures were constructed during 1942 and 1943 for use as new pilot plant facilities. Support structures, including a pilot filling tower, a pilot mixing building, and storage magazines were constructed in 1945. Building E37XX Complex facilities were used for experimental filling rather than process work. It is possible that pilot scale manufacturing of nitrogen mustard was also performed in these facilities. Experimental filling of plasticized white phosphorus was performed at the complex during WWII.

Elevated concentrations of arsenic (16.7 mg/kg) and benzo(a)pyrene (2.4 mg/kg) have been detected in site soils. Elevated pesticide and metal concentrations were also detected in the sediments.

STATUS

CONTAMINANTS:
VOCs, Metals, PAHs, Pesticides
MEDIA OF CONCERN:
Groundwater, Soil, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). Soil removal is anticipated.

B-Field Kings Creek Dump - Cluster 3K
EACC3K-B

SITE DESCRIPTION

The B-Field Kings Creek Dump is located in the APG-EA southwest of Kings Creek and north of Building E3700. Demolition debris, chemical material, and miscellaneous junk were placed at the 8.3-acre dumpsite. The only hazardous chemical material found at the site was CS, which was contained in bags. These bags of CS were removed from the site by U.S. TEU personnel.

No visible CS residue was left at the site. No environmental sampling has been performed at the site with the exception of one groundwater sample. The well is located in the Canal Creek Aquifer and exhibited a DMMP detection of 99 ppb.

STATUS

CONTAMINANTS:
DMMP, CWM, Arsenic
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded). Soil removal is anticipated.

Building E3640 Process Laboratory - Cluster 3L
EACC3L

SITE DESCRIPTION

The Building E3640 Process Laboratory is located in the APG-EA on the north side of Beach Point Road, northeast of Building E3570. The facility was constructed in 1951 and 1952 and was used as a process laboratory from 1952 until 1978. Most of the work at the site involved preparation of materials or evaluation of production processes. Research involving the disposal of chemical agents was also performed at Building E3640. The site is currently abandoned. Chemical used at the site would have included essentially all of the standard U.S. military chemical agents and post-WWII experimental agents. Other miscellaneous chemical, such as B-1 dye, manufacturing raw materials, and intermediates of those materials, were used or stored onsite.

Removal Actions to fill in site sumps were completed in May and December of 1995. Di-isopropyl methylphosphonate (DIMP) has been detected in the subsurface soil and the surficial aquifer at the site. Draft DIMP toxicity and screening-level risk assessment reports were distributed for review in 1999. These reports indicate that DIMP contamination at this site poses a negligible risk to plants and animals at the site, including aquatic resources in the tidal estuarine waters of Kings Creek.

STATUS

CONTAMINANTS:
DIMP
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04 (additional well installation costs included in FY05 estimate). The RI/FS is expected to be completed in FY05 (funded). No further action is anticipated.

Beach Point Test Site - Cluster 3N
EACC3N

SITE DESCRIPTION

The Beach Point Test Site is located on a small peninsula at the mouth of Kings Creek where the creek flows into Bush River. The Beach Point Test Site includes the peninsula, areas south of Beach Point, and areas northeast of the APG-EA Wastewater Treatment Plant (DSERTS No. EACC3M-A). The southern portion of the test site has been used for a variety of military testing work, including firing tests of 4.2-inch mortar rounds (1940s) and performance tests for pyrotechnic devices and smoke generators (1945-1970). Many of the wastes generated from these tests were discharged directly into the Bush River.

A ROD for this site was finalized in 1997 that requires long-term monitoring of the site. Quarterly sampling events for the first year of long-term monitoring occurred in February, May, September, and December 1999. Sampling events included sampling and analysis of surface water and sediments in Bush River and Kings Creek. In addition, the annual groundwater-sampling event occurred in February 1999. Results do not suggest contaminant release to sediment and surface water due to discharge of the Beach Point groundwater plume. Annual sampling of surface water, sediments and groundwater started in 2000.

STATUS

CONTAMINANTS:
UXO, VOCs, Metals, PCBs
MEDIA OF CONCERN:
Groundwater, Surface Water, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RIP (1997) with LTM
FUTURE IRP PHASE:
RIP (1997) with LTM

PROPOSED PLAN

Annual LTM will continue through the next five-year review for the Edgewood Area in FY07.

B-Field Range Area - Cluster 3O
EACC3O

SITE DESCRIPTION

The B-Field Range Area is located in the APG-EA along a trail south-east of Building E3580 and Beach Point Road. The B-Field Range Area was used as an impact area for mortar and artillery testing from the A-Field firing point during the 1920s. B-Field may also have been the site of GA agent storage during the late 1940s.

STATUS

CONTAMINANTS:
VOCs, UXO, CWM
MEDIA OF CONCERN:
Groundwater, Soil, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS, LTM
FUTURE IRP PHASE:
LTM

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (partically funded). LTM is anticipated.

Mosquito Test Grid Area - Cluster 3P
EACC3P

SITE DESCRIPTION

The Mosquito Test Grid Area is located in the APG-EA, southwest of Building E2100. The site was used in the late 1960s by AEHA to develop pesticides for mosquito control. Mosquitoes were raised in ponds onsite and pesticides were applied to determine lethality to mosquito larvae. The ponds were constructed with black polyethylene. Eighty-two ponds were constructed; each was ~4 x 5 x 1.5 ft.

Four insecticides were evaluated at the site including: Temephos, Chloropyrifos, Fenthion and Naled.

STATUS

CONTAMINANTS:
Black Polyethylene
MEDIA OF CONCERN:
Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional RI sampling was funded in FY04. The RI/FS is expected to be completed in FY05 (funded).

East Area Canal Creek Aquifer - Cluster 4A-A
EACC4A

SITE DESCRIPTION

The Canal Creek Aquifer primarily includes two contaminant plumes: the East Canal Creek Area Plume and the West Canal Creek Area Plume. The West Canal Creek Area Plume mainly includes chlorinated VOC contamination and tends to flow toward the West Branch of Canal Creek or the Gunpowder River. Additional investigation activities work are presently being conducted for the West Canal Creek Area Plume; this plume is being addressed in a separate action. The ROD, signed in July 2000, addresses the VOC contamination within the East Canal Creek Area Plume and describes initial treatment plant discharge to the surface waters and ultimately beneficial reuse. The treatment plant construction was completed in FY03. Plant operations began in FY03.

STATUS

CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RIP (2003) with RA(O)
FUTURE IRP PHASE:
RIP (2003) with RA(O)

PROPOSED PLAN

The East Branch Canal Creek Groundwater Treatment Plant (GWTP) began operation in April 2003. Operation will continue for the next 30 years. Long-term monitoring includes: (1) quarterly sampling of 23 monitoring wells for VOCs and total metals; (2) annual natural attenuation sampling and analysis (for VOCs, ferrous iron, sulfate, chloride, and dissolved gases) at 6 wells; (3) annual monitoring of extraction wells (for VOCs, total metals, methane, alkalinity, hardness, and TDS); and, (4) quarterly water-level surveys on up to 51 monitoring wells and 8 extraction wells.

West Area Canal Creek Aquifer - Cluster 4A-B
EACC4A-B

SITE DESCRIPTION

Because of questions raised by the APG SCC TAG, the West Branch plume of the Canal Creek Aquifer was removed from the Canal Creek Aquifer ROD. USGS has conducted extensive natural attenuation studies at this site since 1994, revealing that the organic-rich wetland sediments are removing the VOCs from the contaminated aquifer for the most part. VOCs have been detected in the surface waters of the West Branch Canal Creek, and the Canal Creek below the confluence of the West and East Branches. Because of this finding, USGS has conducted thermal imaging surveys, and identified seeps where groundwater is bypassing the wetland sediments and discharging directly into the Creek. Additional investigations/studies are ongoing for delineating the extent of the seeps and for developing a remedial alternative for evaluation in the FS. Additional upland plume delineation work is ongoing. The RI and FS for the upland plume are anticipated in late FY04. A phytoremediation treatability study will commence in FY04.

STATUS

CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RD, RA, RA(O)

PROPOSED PLAN

A RI/FS must be prepared for this site. It is anticipated that the ROD for this site will be completed in FY05. At this point in time, it is anticipated that a possible remedial action will be MNA plus wetland enhancement via biomats (to be developed by USGS).

Canal Creek Bed Sediment Source Area - Cluster 5A
EACC5A

SITE DESCRIPTION

Numerous surface water and sediment samples were taken along both the East Branch and West Branch of Canal Creek (~6 miles long) in support of RI and Risk Assessment activities. Fifty organic chemicals have been detected in sediment samples; 34 have been identified as contaminants of potential concern. Pesticides and Arochlor concentrations consistently exceed Toxicity Reference Values (TRVs). PAH concentrations indicate the potential for impact to benthic organisms. Mercury hot-spots are a potential concern to human health and the ecological receptors.

In FY03, EPA performed sediment sampling in the Canal Creek in support of an ecological risk assessment. Ecological risk assessments work is ongoing.

STATUS

CONTAMINANTS:
Pesticides, PCBs, PAHs

MEDIA OF CONCERN:
Sediment, Surface Water

RRSE RATING:
Low

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Additional RI is planned. The results of the ecological risk assessment will deside the remedial alternative. It is anticipated that some sediment removal and habitat reconstruction may be required.

Kings Creek Sediment Pesticide Source Area - Cluster 5B EACC5B

SITE DESCRIPTION

The Kings Creek Sediments Pesticide Source Area is located in the APG-EA along the western arm of Kings Creek. In 1994, sediment samples were taken throughout Kings Creek. DDD_r detections in the sediment indicated the possible presence of a pesticide source in the creek bed; however, the location of this source has not been ascertained at this time. Silver and mercury concentrations consistently exceed available Toxicity Reference Values (TRVs).

Additional sampling in support of an ecological risk assessment is ongoing.

STATUS

CONTAMINANTS:
Pesticides, Metals
MEDIA OF CONCERN:
Sediment, Surface Water
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Additional RI is planned. Sediment removal and habitat reconstruction is planned.

Building 503 Smoke Mixture Burning Sites - Cluster 1L EACC1L-A

SITE DESCRIPTION

The Bldg 503 Smoke Mixture Burning Sites are located northeast and southeast of Bldg 502 within the confines of the Bldg 502 Smoke Pot Pilot Plant grounds. The Bldg 503 Smoke Mixture Burning sites were used for burning, testing, and disposal of smoke mixtures during WWII.

A ROD for the Bldg 503 Soil Operable Unit was signed in 1996 that recommended excavation of contaminated soil/ash and incorporation into the foundation layer of Bldg 103 Dump Cap.

Remedial action for the Bldg 503 Smoke Mixture Burning sites was completed in FY99.

The site requires no further action.

STATUS

CONTAMINANTS:
VOCs, Smoke Mixture Residues
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC - 1999

Wastewater Treatment Area - Cluster 3M EACC3M-A

SITE DESCRIPTION

The Wastewater Treatment Area is located in the APG-EA at the eastern end of Beach Point Road, just southwest of the Beach Point peninsula. Original portions of the facility were constructed during 1941 and 1942. The plant has been upgraded at least twice during the 1960s and 1980s to provide various secondary treatment systems. Some chemical plant wastewater systems were connected to the treatment plant during WWII. Very high concentrations of 1,1,2,2-tetrachloroethane, along with other organic chemicals, were contained in wastewater discharged to the facility. The plant is currently in operation.

The results of RI surface soil, subsurface soil, and groundwater sampling did not indicate significant contamination at this site. The sediment samples also did not show any significant contamination, although pesticides not related directly to the operation of the Wastewater Treatment Plant were detected at concentrations above the sediment screening levels.

No further action is planned.

STATUS

CONTAMINANTS:
VOCs, Pesticides
MEDIA OF CONCERN:
Groundwater, Sediment
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC - 1989

B-Field Decon-Detox Incinerator - Cluster 3M
EACC3M-B

SITE DESCRIPTION

The B-Field Decon-Detox Incinerator is located in the APG-EA in the Building E39XX Complex, north of Beach Point Road. No RI/FS sampling has been performed in this area. A past fuel oil spill in the ware was addressed by the DSHE Environmental Compliance Division (ECD). Environmental sampling conducted by DSHE ECD revealed arsenic concentrations in the surface soil that exceeded RBCs and background concentrations.

The site will be closed under RCRA. No further action is required under the IRP.

STATUS

CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC - 2000

HMF/ UST Removal/ Closure
EACC6

SITE DESCRIPTION

The Hazardous Material Facilities (HMFs) are located in the APG-EA, throughout the Canal Creek Study Area. A Consent Order in 1993 between the Maryland Department of the Environment and the U.S. Army listed the HMFs to be characterized and remediated. These HMFs were historically used to store, collect, or treat non-petroleum substances. Combined removal and in-place closure for the Canal Creek HMFs commenced in December 1999.

Two 10,000-gallon suspect mustard tanks found within Building 5185 were investigated in 2002. These tanks were empty and uncontaminated. They were closed in place. No further action is needed.

STATUS

CONTAMINANTS:
VOCs, SVOCs, Chemical Agent
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA, RA
CURRENT IRP PHASE:
RC - 2002

Unexploded Ordnance/ CWM
EACC7

SITE DESCRIPTION

Unexploded Ordnance/Chemical Warfare Materiel (UXO/CWM) is located throughout the Canal Creek Study Area. This DSERTS No. includes UXO/CWM found along the installation boundary. Funding availability for these items is uncertain.

Removal of conventional UXO for general safety reasons is normally considered as one of the general operations and maintenance functions of an Army Installation, and is therefore funded out of the Installation's Annual Operating Budget. Such activity is ineligible for ER,A funding, unless the removal is directly incident to, or in support of, a related remediation activity. In such cases, funding for the UXO-related work will be appropriated against the appropriate specific individual DSERTS sites.

STATUS

CONTAMINANTS:
UXO/CWM
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RC - 1989

Carroll Island Study Area
EACI00

SITE DESCRIPTION

Carroll Island Study Area (CISA) is an ~ 855 acres land mass located southwest of the Edgewood Peninsula across the Gunpowder River (a tributary of the Chesapeake Bay). Carroll Island was acquired by APG in 1918, but no existing evidence indicates testing or training operations were conducted at the study area until 1944. From 1944 to 1972, Carroll Island was used as the primary open-air chemical agent test site for the Edgewood Area; chemical agent testing operations included contamination/decontamination, dispersion and persistence studies and chemical munitions tests. Prior to 1964, materials such as mustard, chlorobenzene, sarin, VX, white phosphorus, and explosives were tested. Between 1961 and 1971, testing of lethal chemical agents, incapacitating agents, and smoke/incendiary materials was conducted. Waste from testing activities was discarded via dumping or burial on the island. The CISA contains areas of CWM/UXO, which may result in a potential release of constituents to the surrounding environment and the Chesapeake Bay due to the shallow water table, flooding, and shoreline erosion.

A ROD was signed in Aug 2001, calling for land use controls and shoreline stabilization.

STATUS

CONTAMINANTS:
UXO, Chemical Agents
MEDIA OF CONCERN:
Soil, Groundwater, Surface Water
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA, RD, RA
CURRENT IRP PHASE:
RIP (2004) with LTM
FUTURE IRP PHASE:
RIP (2004) with LTM

PROPOSED PLAN

Implement land use controls and shoreline stabilization will be completed (3,500 ft, expected in 2004) as required by the ROD.

Bengies Point Rd. Dump - Cluster 1
EACI01-A

SITE DESCRIPTION

The Bengies Point Road Dump is a 1.1 acre low-lying marshy area used from the early 1950s until the early 1970s as solid waste dump. The waste placed in the dump reportedly included the solid waste generated during test activities that was not contaminated with CWM (e.g., paper, wood, and empty reagent containers). Dumped material (i.e., personal protective equipment, fragments of CS grenades, concrete, and other building materials) was visible during the dry season. Additional contaminants identified during the RI include chemical agent degradation products. Geophysical data and visual observations indicate the presence of waste at this site. Migration of wastes could occur following breakdown of wastes or rupture of waste containers.

A ROD for Carroll Island Operable Unit A (Disposal Pits) was signed in September 1996. The major components of the selected remedy included hand excavation of the disposal pits/areas of concern and segregation and disposal/treatment of the excavated waste. All waste has been recovered and the site has been remediated. Five hundred eighty cubic yards of 3X waste and 200cy of soil were removed.

No further action is needed.

STATUS

CONTAMINANTS:
Dumped Material, Chemical Agent Deg. Products
MEDIA OF CONCERN:
Soil, Groundwater, Surface Water
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC- 1999

Bengies Point Road Farm House - Cluster 1
EACI01-B

SITE DESCRIPTION

The Bengies Point Road Farm House site is a 0.5 acre area located to the east of Bengies Point Road near the Bengies Point Dump. This site appears to have been used as a disposal pit/dry well; however, information regarding this site is very limited. Contamination detected at this site at levels above RI comparison criteria or CRLs includes two inorganics in the soil and four inorganics in the surface water.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Inorganics
MEDIA OF CONCERN:
Soil, Surface Water
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

Old Carroll Island Road Dump - Cluster 1
EACI01-C

SITE DESCRIPTION

Old Carroll Island Road Dump Site is located north of Bengies Point Road Dump, in the western half of Carroll Island. No historical information is available for this site. Based on visual observations, the area was used for dumping miscellaneous laboratory/testing wastes. Metal debris and items wrapped in plastic are visible through out the dump, including laboratory apparatus, gas mask canisters, empty supertropical bleach cans, and a jointed pipe. A geophysical survey conducted during the RI detected anomalies in two mounds and in an area between them. Future contaminant migration could occur following breakdown of wastes or rupture of waste containers.

A ROD for Carroll Island Operable Unit A (Disposal Pits) was signed in September 1996. The major components of the selected remedy included hand excavation of the disposal pits/areas of concern and segregation and disposal/treatment of the excavated waste. All waste has been recovered and the site has been remediated. Fourteen cubic yards of 3X waste was removed. Site closure and QA/QC activities are complete. No further action is required

STATUS

CONTAMINANTS:
Debris
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC - 1999

AOC Associated with Site 10 - Cluster 1
EACI01-D

SITE DESCRIPTION

A 2.2 acre area of concern (AOC) associated with the Bengies Point Road Dump (EACI01-A) was identified to the south of the dump. This site appears to have been used for surface disposal; however, no historical information is available. Contamination detected at levels above RI comparison criteria or CRLs includes thiodiglycol and seven inorganics in surface water and pesticides (i.e., DDD and DDE) in sediment.

Based upon the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Thidiglycol, Inorganics, Pesticides
MEDIA OF CONCERN:
Surface Water, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

Service Area - Cluster 2
EACI02-A

SITE DESCRIPTION

Service Area is located in the western half of Carroll Island (CI). This site supported testing operations on CI and housed various activities, such as laboratory work and equipment maintenance. A small package treatment plant treated waste water generated at the site. VOCs, SVOCs, pesticides, and organics in the sediment posed a potential ecological risk; therefore, the package plant was removed in 1999 under a CERCLA removal action. Six areas of buried metal or disturbed soils were identified during the geophysical surveys. Soil borings were advanced at these 6 areas, and only 1 mound was reported to contain metal wastes. This single mound contains wastes associated with historical disposal activities. In addition to the buried waste, several surface debris areas were observed at the Service Area. This debris included empty laboratory glassware, empty supertropical bleach cans, empty cans identified as possibly having contained CWM land mines, and a few items such as gas mask filters. Geophysical data and visual observations indicate the presence of waste at this site. Contaminant migration could occur following breakdown of wastes or rupture of containers.

A ROD for CI OU A (Disposal Pits) was signed in September 1996. The major components of the selected remedy included hand excavation of the disposal pits/areas of concern and segregation and disposal/treatment of the excavated waste. All waste has been recovered and the site has been remediated. 2.5cy of 3X waste were removed. No further action is needed.

STATUS

CONTAMINANTS:
Buried Waste, Surface Debris
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA, RD, RA
CURRENT IRP PHASE:
RC - 1999

Dredge Spoil Site - Cluster 2
EACI02-B

SITE DESCRIPTION

The Dredge Spoil Site is a 49 acre site in the southern portion of the Eastern half of Carroll Island. This unit is an area in which dredge spoil from the channel between Carroll Island and the mainland was deposited on two occasions. Dredge spoil was first deposited at the site on Carroll Island during the 1950s or 1960 and again during May and June of 1972; the dredge spoil site has not been used since. The dredging was performed due to operating requirements of the BG&E power plant located immediately west of Carroll Island. Contaminants at levels above RI comparison criteria or CRLs includes three inorganics in surface water, bis(2-chloroisopropyl)ether in sediment, and four inorganics in groundwater.

Based on the RI, this site requires no further action because it does not pose a risk.

STATUS

CONTAMINANTS:
Bis(2-Chloroisoptopyl)Ether
MEDIA OF CONCERN:
Surface Water, Sediment, Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

Woods West of Service Area - AOC Associated with Site 13 EACI02-C

SITE DESCRIPTION

The AOC associated with Site 13 is located in the woods adjacent to the west side of the Service Area. This AOC consists of six mounds, one pit, and an area containing rusted metal debris. No specific historical information is available to characterize the contents of the mounds, pit, or debris pile. During the RI, a geophysical survey was conducted to determine the presence of metallic objects. Based on the results of the survey, buried metal was determined to be present in two mounds. Geophysical data and visual observations indicate the presence of waste at this site. Future contaminant migration could occur following breakdown of wastes or rupture of waste containers.

A ROD for Carroll Island Operable Unit A (Disposal Pits) was signed in September 1996. The major components of the selected remedy included hand excavation of the disposal pits/areas of concern and segregation and disposal/treatment of the excavated waste. All waste has been recovered and the site has been remediated. Two and one-half cubic yards of 3X waste were removed

No further action is needed.

STATUS

CONTAMINANTS:
Buried Materia;
MEDIA OF CONCERN:
Soil, Groundwater,
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC - 1999

Edgewood Proving Ground Dump - Cluster 3 EACI03

SITE DESCRIPTION

Edgewood Proving Ground Dump is located within 50 ft of Saltpeter Creek, at the northern end of a linear drainage ditch that extends north-south across the center of the island. The ditch periodically contains water, which results in the site being in direct surface water contact with Saltpeter Creek. The site was used between 1943 and the early 1950s, and was reported to be a simple dump with no burning. Waste was reportedly dumped along the eastern edge of the ditch, forming a berm ~2 ft x 3 ft wide; and waste was also reportedly dumped into the bottom of the ditch. Surficial debris includes construction material and cans of bleaching powder. The dump area is ~30 ft in length. Geophysical data, visual observations, and historical information indicate that wastes are present in the berm and ditch. Future contaminant migration could occur following breakdown of wastes or rupture of waste containers.

A ROD for Carroll Island Operable Unit A (Disposal Pits) was signed in September 1996. The major components of the selected remedy included hand excavation of the disposal pits/areas of concern and segregation and disposal/treatment of the excavated waste. All waste has been recovered and the site has been remediated. 22cy of 3X waste were removed. No further action is needed.

STATUS

CONTAMINANTS:
Surface Debris, Buried Material
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC - 1999

Aerial Spray Grid - Cluster 4
EACI04-A

SITE DESCRIPTION

The Aerial Spray Grid/Decontamination Spray Area was the location of chemical agent testing during the late 1940s or early 1950s through the early 1970s. Contamination at levels above RI comparison criteria or CRLs includes five inorganics in surface water; nine TCL SVOCs, DDE, DDD, and zinc in sediment; and five inorganics in groundwater.

Based on the RI, EACI04-A requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Inorganics, SVOCs, Pesticides
MEDIA OF CONCERN:
Surface Water, Sediment, Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

Decontamination Pits - Cluster 4
EACI04-B

SITE DESCRIPTION

The Decontamination Pits are located in the central part of Carroll Island (CI), south of the BZ Test Burn Pits. During the decommissioning of CI in the 1970s, these pits were used to burn items from facilities that had been used in CWM testing. Fuel oil components were likely the primary chemicals introduced into the environment as part of these operations. It is reported that no chemicals were disposed of; however, items burned in the pits may have been contaminated with detectable levels of CWM. The pits were closed in 1975 by filling them with soil that had been removed during their construction. Historical information indicates that Decontamination Pits consist of 2 trenches – a 400-ft-long U-shaped trench and a 200-ft-long V-shaped trench. Current surface features confirm the historical information. Future contaminant migration could occur following breakdown of wastes or rupture of waste containers.

A ROD for Carroll Island Operable Unit A (Disposal Pits) was signed in September 1996. The major components of the selected remedy included hand excavation of the disposal pits/areas of concern and segregation and disposal/treatment of the excavated waste. All waste has been recovered and the site has been remediated. 135cy of 3X waste and 1,600cy of soil were removed. No further action is needed.

STATUS

CONTAMINANTS:
Surface Waste, Buried Material
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC - 1999

Woods West of Aerial Spray Grid
EACI04-C

SITE DESCRIPTION

The AOC associated with the Aerial Spray Grid (EACI04-A) lies in a wooded area adjacent to the Aerial Spray Grid in the central portion of Carroll Island. Available historic information indicates that CWM testing took place in the marsh and wooded areas adjacent to the spray grid. This AOC consists of 14 small mounds and 11 larger mounds (aerial photographs from 1952 showing pits and depressions within this AOC support this information); however, historic information does not characterize the contents of the mounds and pits, or define disposal practices in this area. Geophysical anomalies were identified in and excavated from seven of the 25 mounds during the RI; none of the anomalies were indicative of large-scale disposal. Future contaminant migration could occur following breakdown of wastes or rupture of waste containers.

A ROD for Carroll Island Operable Unit A (Disposal Pits) was signed in September 1996. The major components of the selected remedy included hand excavation of the disposal pits/areas of concern and segregation and disposal/treatment of the excavated waste. All waste has been recovered and the site has been remediated. 5 cy of 3X waste were removed. No further action is needed.

STATUS

CONTAMINANTS:
Buried Metal
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC - 1999

BZ Test Burn Pits - Cluster 4
EACI04-D

SITE DESCRIPTION

The BZ Test Burn Pits are located in the northern part of Carroll Island. Historical information indicates that this site was used briefly during the 1960s to study the effectiveness of BZ munition disposal by open pit burning. Site features include the burn pit with metallic debris in the bottom; a mound next to the pit which is most likely excavated material from the burn pit; two small burn pits to the southeast; and a small test tower northeast of the burn pit. The approximate area of the pits associated with the BZ Burn Pits is 1,177 square feet. Wastes are buried at this site based on geophysical data, visual observations, and historical information. Future breakdown of wastes or rupture of buried containers could result in contaminant release. Additionally, shoreline erosion to the north of the site could transport contaminants to surrounding water bodies, including the Chesapeake Bay.

A ROD for Carroll Island Operable Unit A (Disposal Pits) was signed in September 1996. The major components of the selected remedy included hand excavation of the disposal pits/areas of concern and segregation and disposal/treatment of the excavated waste. All waste has been recovered and the site has been remediated. 100 cy of 3X waste and 400 cy of soil were removed. No further action is needed.

STATUS

CONTAMINANTS:
Buried Waste
MEDIA OF CONCERN:
Soil, Groundwater, Surface Water
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC - 1999

Test Grid 1 - Cluster 5
EACI05-A

SITE DESCRIPTION

Test Grid 1 is located in the center of the eastern half of Carroll Island in an open, level field. The 22.5-acre area was used for chemical agent testing in the area from the late 1940s to about 1971. The test grid was constructed in the 1950s, and was later upgraded and rebuilt in 1963. The grid consisted of a central testing area surrounded by sampling apparatus located in concentric circles. Contamination at levels above RI comparison criteria or CRLs includes 12 TCL SVOCs and five inorganics in soil; 4-methylphenol and eight inorganics in surface water; DDD and DDE in sediment; and naphthalene and five inorganics in groundwater.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
SVOCs, Inorganics, Pesticides
MEDIA OF CONCERN:
Soil, Surface Water, Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

Magazine Area - Cluster 5
EACI05-B

SITE DESCRIPTION

The Carroll Island Magazine Area was used for temporary storage of chemical agents prior to use in test programs. The filling of munitions with chemical agent was also performed in the Magazine Area. The Magazine Area was used for these activities for most of the period during which testing was performed at Carroll Island (i.e., 1944 through 1972). Contamination at levels above RI comparison criteria or CRLs includes 2-methylnaphthalene and nickel in soil, six inorganics in surface water, and four inorganics in groundwater.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
SVOCs, Metals, Inorganics
MEDIA OF CONCERN:
Soil, Surface Water, Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

Animal Shelter - Cluster 5 EACI05-C

SITE DESCRIPTION

The Animal Shelter was constructed in 1963 or 1964 during facility upgrade work. Facility drawings indicate that this building (E7987) was constructed as an animal shelter; however, it may have been used for other purposes. A wastewater disposal system at this site included three dug wells, a cistern, and a septic tank with a subsurface tile drain system. No information exists to indicate whether management of wastes, other than sanitary wastewater, occurred at this site. Building E7987 still exists and is used to a limited extent by trappers and environmental personnel. No contamination constituents exist at this site above screening criteria.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

Animal Shelter Woods East of Test Grid 1 - Cluster 5 EACI05-D

SITE DESCRIPTION

The Animal Shelter Woods site consists of 13 small mounds, a pit associated with one of the mounds, a holding pond, a ditch, a building foundation, and push-back mounds. Available historic information does not characterize this area or provide insight into the types of materials contained in the pit or mounds. Geophysical surveys conducted during the RI detected metal buried in the ends of the push-back mounds and in another small mound southwest of the push-back. Although RI data indicate no evidence of contaminant migration, future migration could occur following breakdown of waste or rupture of waste containers.

A ROD for Carroll Island Operable Unit A (Disposal Pits) was signed in September 1996. The major components of the selected remedy included hand excavation of the disposal pits/areas of concern and segregation and disposal/treatment of the excavated waste. All waste has been recovered and the site has been remediated. Fourteen cubic yards of 3X waste were removed. No further action is needed.

STATUS

CONTAMINANTS:
Buried Metal
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC - 1999

Pushback Mounds North & East of Test Grid 1 - Cluster 5 EACI05-E

SITE DESCRIPTION

The AOC associated with Test Grid 1 consists of several mounds that make up two push-back mounds along the tree line north and east of the grassy areas around Test Grid 1 (EACI05-A). Test Grid 1 served as one of the primary CWM test facilities at Carroll Island from 1947 through 1971. Available historic information does not characterize the contents of the mounds or define disposal practices. A geophysical survey of the area conducted as part of the RI confirmed the presence of buried metal at several points in the push-back mounds. Based on geophysical information and site observations, the FFS concluded that wastes are likely present in the mounds and recommended remediation of the push-back mounds to prevent future breakdown of wastes or rupture of containers and subsequent contaminant release.

A ROD for Carroll Island Operable Unit A (Disposal Pits) was signed in September 1996. The major components of the selected remedy included hand excavation of the disposal pits/areas of concern and segregation and disposal/treatment of the excavated waste. All waste has been recovered and the site has been remediated. 24 cy of 3X waste were removed. No further action is needed.

STATUS

CONTAMINANTS:
Buried Metal & Waste
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC - 1999

Wind Tunnel - Cluster 6 EACI06-A

SITE DESCRIPTION

The Wind Tunnel was constructed during the early 1960s and was used until 1971 as a facility for testing of chemical agents. The agent was released in the tunnel and was discharged into the atmosphere. During nearly all of the operational period, no scrubbing of the tunnel exhaust occurred to remove chemical agents; nearly all of the chemical discharged from the wind tunnel stack were carried out over the Gunpowder River. A scrubber system was installed very near the end of the operational period, during which only CS was being tested. The wind tunnel was chemically decontaminated after tests throughout operation. Wastewater from decontamination was discharged to a ditch and the marsh east of the Wind Tunnel. The Wind Tunnel was removed in September 1993. Contamination at levels above RI comparison criteria or CRLs includes DDD in soil,and diethylphthalate and five inorganics in groundwater.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Inorganics, DDD, Diethylphthalate
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1997

Woods South of Wind Tunnel Road
EACI06-B

SITE DESCRIPTION

The Woods South of Wind Tunnel Road is located east of the road to Lower Island Point and south of Wind Tunnel Road. This area includes five small mounds and two pits associated with the mounds. No specific historical information is available concerning this site or what types of materials may be contained in the mounds or pits; however, an "area of ground scarring indicating activity" is visible on historical aerial photographs dated 1970 and 1971. Geophysical surveys conducted as part of the RI determined that buried metal was present in one mound. No anomalies were located at any of the other locations surveyed within this site. Although the RI data indicate no evidence of contaminant migration from this area of concern, future migration could occur following breakdown of waste or rupture of waste containers.

A ROD for Carroll Island Operable Unit A (Disposal Pits) was signed in September 1996. The major components of the selected remedy included hand excavation of the disposal pits/areas of concern and segregation and disposal/treatment of the excavated waste. All waste has been recovered and the site has been remediated. 5 cy of 3X waste were removed. No further action is needed.

STATUS

CONTAMINANTS:
Buried Metal
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC - 1999

UST at Wind Tunnel - Cluster 6
EACI06-C

SITE DESCRIPTION

Facility drawings do not show any underground tanks associated with the Wind Tunnel (EACI06-A); however, field inspections and interview information indicated the presence of an underground tank immediately south of the building. This 250-gallon tank was used to store cooling fluid and was probably installed during the early to mid-1960s. The coolant used was an ethylene glycol and water mixture. This UST was removed in August 1995 as a CERCLA removal action.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1997

CS Test Area - Cluster 6 EACI06-D

SITE DESCRIPTION

Testing with chemical materials (e.g. CS) was also conducted at various other sites on Carroll Island. An area west of the Wind Tunnel (EACI06-A) was used for ground contamination studies involving CS. Historical information regarding this site is very limited. Contamination at levels above RI comparison criteria or CRLs includes four inorganics in the surface water and five inorganics in the groundwater.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Inorganics
MEDIA OF CONCERN:
Surface Water, Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

CS Test Area Mounds - AOC Associated with Site 12 - Cluster 6 EACI06-E

SITE DESCRIPTION

Contaminated soil piles/mounds exist in association with the CS Test Area (EACI06-D). Historical information regarding the CS Test Area Mounds is not available.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

VX Test Area - Cluster 7
EACI07-A

SITE DESCRIPTION

The area to the southwest of Test Grid 2 (EACI07-B) was used for testing that involved the aboveground release of VX. Other testing in the area involved contamination and decontamination of four rectangular pads made of asphalt and concrete.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

Test Grid 2 - Cluster 7
EACI07-B

SITE DESCRIPTION

Test Grid 2 is located on the southern portion of Carroll Island. The features of Test Grid 2 are similar to those of Test Grid 1 (EACI05-A); however, Test Grid 2 is smaller and has no underground drainage, sampling, or control systems. The grid is semicircular, with air samplers arranged mainly to the east of the release point. Testing in the area began before the test grid was constructed. The area was first used in the mid-1940s as an impact area for 4.2-inch chemical mortars filled with high explosives, white phosphorus, and possibly other smoke materials. The area was used to test chemical agents from the late 1940s or early 1950s to the early 1970s. The greatest use of the area was during renovation of Test Grid 1 in the early 1960s.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Chemical Agents, Explosives
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

HD Test Area & Areas East of Test Area - Cluster 7
EACI07-C

SITE DESCRIPTION

The HD Test Area was used for ground contamination studies with chemical agents, including mustard and VX. The studies were conducted by contaminating an area and then measuring the persistence of the agent. The area was decontaminated using STB or chlorine bleach after mustard was used. The HD Test Area has no permanent facilities associated with it. Testing in the Area east of the HD Test Area included operations with small wind tunnels, shock testing of chemical-filled items, and tests of agent penetration of a small portable bunker. Contamination at levels above RI comparison criteria or CRLs include four VOCs in soil gas, five inorganics in surface water, and five inorganics in groundwater.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Soil, Surface Water, Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

(Lower Island) Disposal Site - Cluster 8
EACI08

SITE DESCRIPTION

Lower Island Disposal Area is located at the southern end of Carroll Island. It was reportedly used for waste disposal and for limited test activities from the early 1940s until testing activities ceased in the early 1970s. Early disposal activities consisted of dumping waste into the marsh area near the shoreline. The waste that was reportedly placed in the area was from testing activities conducted on Carroll Island. It consists of fragments and remains of munition items, sampling equipment, and items of protective clothing that were no longer usable. Very little chemical waste was disposed of at this site. However, potential CWM-contaminated waste from Service Area (EACI02-A) was reportedly dumped at this site. Geophysical surveys conducted during the RI appear to confirm the available historical information.

A ROD for Carroll Island Operable Unit A (Disposal Pits) was signed in September 1996. The major components of the selected remedy included hand excavation of the disposal pits/areas of concern and segregation and disposal/treatment of the excavated waste. All waste has been recovered and the site has been remediated. 750 cy of 3X waste and 2,000 cy of soil were removed. No further action is needed.

STATUS

CONTAMINANTS:
Buried Waste, CWM
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA, RD, RA
CURRENT IRP PHASE:
RC - 2000

Graces Quarters Study Area
EAGQ00

SITE DESCRIPTION

The Graces Quarters Study Area (GQSA) is ~476 acres and is situated on a peninsula located on the west side of APG. From 1944 to 1971, chemical agent and biological simulant testing were performed. During the period of July 1964 through December 1971, VX, Tevlar, sarin, soman, EA3990, mustard, BZ, adamsite, chloroacetophenone, WP, FS, TEA, CSM, and decontaminating agents were released during testing activities. Solid waste was buried in pits at disposal areas. Specific sites pose a potential human health risk due to the presence of lead in the soils and VOCs in the groundwater. Specific sites pose a potential ecological risk due to the presence of mercury in the soils. The GQSA contains areas of CWM/UXO which may result in a potential release of constituents to the surrounding environment and the Chesapeake Bay due to the shallow water table, flooding, and shoreline erosion.

A ROD was signed in Aug 2001, calling for land use controls and shoreline stabilization.

STATUS

CONTAMINANTS:
Lead, Mercury, VOCs, UXO/CWM
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA, RD, RA
CURRENT IRP PHASE:
RIP (2002) with LTM
FUTURE IRP PHASE:
RIP (2002) with LTM

PROPOSED PLAN

Implement land use controls and shoreline stabilization (1,500 ft, expected in 2005) as required by the ROD.

Surficial Aquifer - Cluster 2
EAGQ02-D

SITE DESCRIPTION

The surficial aquifer beneath Graces Quarters consists of fine-to-medium sand, with small amounts of fine-to-medium gravel and layers of silt and silty clay. This aquifer overlies a confining layer of silty clay. In some areas, the confining layer is absent, connecting the surficial aquifer to the underlying aquifer. The surficial aquifer contains a contaminant plume consisting primarily of VOCs up to 8,400 mg/L. The plume is migrating to the south-southwest and exceeds the EPA target risk range of 1E-06 to 1E-04 (4E-03) and the hazard index criterion of 1.0 (3) for the reasonable worst-case future land use scenario (future military multiple-land use).

The FS was finalized in Dec 2003.

A PBC contract for the RD, RA and RA(O) was awarded in Aug 2004

STATUS

CONTAMINANTS:
VOCs (1,1,2,2-tetrachloroethane)
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
PBC- RD, RA
FUTURE IRP PHASE:
PBC- RA(O)

PROPOSED PLAN

The RD is extected to be completed in FY05. Remedial action is expected to be enhanced insitu remediation.

The current strategy for remediation of the contaminated groundwater at GQSA is to treat the most highly contaminated groundwater and allow the remaining water to naturally attenuate.

Disposal Area - Cluster 1
EAGQ01-A

SITE DESCRIPTION

Graces Quarters Disposal Area is located on the eastern side of Graces Quarters, north of the Primary Test Area (EAGQ02-C). It was used to dispose of waste from chemical testing from the mid-1940s to the early 1970s. Minor testing may also have occurred at this site. The waste (reportedly including munition fragments and remains, unusable sampling equipment, and empty containers) were placed into pits which were covered with soil when nearly full. The contents of the pits, including UXO and chemical testing wastes, were removed during a CERCLA Removal Action, which was conducted between February 1993 and April 1994. Contamination detected or at levels above RI comparison criteria includes 14 TCL PAHs and two TAL inorganics in soil; five TAL inorganics in surface water; and seven TCL VOCs, six TCL SVOCs, and nine TAL inorganics in groundwater.

The disposal pits have been excavated and disposed of off-site. Based on the RI, this site will require no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
PAHs, Inorganics, VOCs, SVOCs
MEDIA OF CONCERN:
Surface Water, Soil, Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1997

Graces Quarters Dump - Cluster 1
EAGQ01-B

SITE DESCRIPTION

Graces Quarters Dump is located south-southwest of the Graces Quarters Disposal Area (EAGQ01-A). Visual examination of the site reveals only empty bleach cans which appear to have been dumped. A much larger area southwest of where the cans were dumped appears to have been used for disposal of trees and rubble. No specific historical information is available regarding what types of material (other than trees or rubble) may have been disposed of at the dump. A CERCLA Removal Action to remove surface debris was completed in 1993. Contamination detected at or above RI comparison criteria includes two TCL VOCs and six TAL inorganics in groundwater.

Based on the RI, this site will require no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
VOCs, Inorganics
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

Bunkers Site - Cluster 1
EAGQ01-C

SITE DESCRIPTION

The Bunker Site is a 0.8 acre, water-filled depression located 400 feet west of the Graces Quarters Disposal Area (EAGQ01-A). During the time which Graces Quarters was used as an impact and firing area, the Bunker Site was a command and control facility. This facility was no longer maintained when the testing program ended. The bunker roof was later removed and water filled the depression, creating a pond. No evidence exists to suggest this site was ever used for disposal. Contamination detected or above RI comparison criteria includes five TAL inorganics in surface water; and one TCL VOC, three TCL SVOCs, and six TAL inorganics in groundwater.

Based on the RI, this site will require no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Inorganics, VOCs, SVOCs
MEDIA OF CONCERN:
Surface Water, Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

FEMA Service Area - Cluster 1
EAGQ01-D

SITE DESCRIPTION

FEMA Service Area is located near the entrance to Graces Quarters and was used to support the FEMA communications tower and bunker. No other historical information is available concerning this site. The FEMA Service Area is unlikely to have been used during testing activities at Graces Quarters, because the FEMA facility was constructed at a later date. Evidence of surficial disposal (including rusted drums and several mounded areas) was found in a wooded area west of the actual service area. The rusted drums were removed during an interim removal action in 1993. Contamination detected or above RI comparison criteria includes one TCL SVOC and one TAL inorganic in the soil.

Based on the RI, this site will require no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
SVOCs, Inorganics
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

FEMA Bunker - Cluster 1
EAGQ01-E

SITE DESCRIPTION

FEMA Bunker Site is a concrete structure located in the northern part of Graces Quarters on the edge of the clearing for the FEMA tower, east of the FEMA Service Area (EAGQ01-C). Two former water supply wells are located inside the bunker, and a septic tank is located just to the north. A cooling pond associated with the site is located to the southwest. The former water supply wells may have supplied cooling water to the two diesel generators still present. Cooling water exited the site through a pipe that discharged to the cooling pond. Contamination detected or at levels above RI comparison criteria include five TAL inorganics in surface water.

Based on the RI, this site will require no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Inorganics
MEDIA OF CONCERN:
Surface Water
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

AOC Associated with Site 4
EAGQ01-F

SITE DESCRIPTION

The AOC associated with Site 4 (Graces Quarters Dump, EAGQ01-B) is located southwest of the Graces Quarters Dump. Miscellaneous debris, labware, one pit, and one large pit associated with a mound were located south of the access road and west of the Graces Quarters Dump. This debris was removed during interim removal actions in 1993. No historical information is available concerning the types of materials (if any) may have been disposed of in this area. Contamination detected or above RI comparison criteria includes one TCL VOC in soil, and two TCL SVOCs and six TAL inorganics in surface water.

Based on the RI, this site will require no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
VOCs, SVOCs, Inorganics
MEDIA OF CONCERN:
Surface Water, Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

HD Test Annuli - Cluster 1
EAGQ01-G

SITE DESCRIPTION

HD Test Annuli at one time consisted of three 120-foot-diameter concrete test rings located north of the road that crosses the peninsula. The rings were constructed in 1951 or 1952 and were used in decontamination studies with HD, VX, and fuming nitric acid. The northernmost ring was reportedly destroyed in 1971 during the installation of the FEMA tower. Two concrete anchors for the FEMA radio tower are also present at this site. Contamination detected or above RI comparison criteria includes one TAL inorganic in soil; and one TCL SVOC, one agent degradation product, and seven TAL inorganics in groundwater.

Based on the RI, this site will require no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
SVOCs, Inorganics, Agent Deg. Products
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

Test Huts - Cluster 1
EAGQ01-H

SITE DESCRIPTION

Test huts were located north and south of the access road to the Service Area. Currently, two concrete foundations are located at the site. The huts were reportedly used briefly for decontamination study work and then as general storage sheds. No other historical information is available concerning past activities at this site. During the RI, mercury was listed as a contaminant of concern at the northeast test hut. Additional sampling was conducted at the site to evaluate the mercury contamination and to determine the need for soil excavation. Limited potential exists for adverse effects to robins from the ingestion of earthworms and soil containing DDTr.

Based on site-specific bioaccumulation studies, no further action is recommended for this site.

STATUS

CONTAMINANTS:
Mercury, DDTr
MEDIA OF CONCERN:
Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1997

Secondary Test Area - Cluster 1
EAGQ01-I

SITE DESCRIPTION

The Secondary Test Area is located southwest of the Graces Quarters Disposal Site. Surveillance testing was reportedly performed at this site. Scattered empty cans of decontaminating agent were removed from the surface during interim removal actions. During the RI, lead was detected in the surface soil at concentrations exceeding EPA lead criteria for Human Health. Additional sampling was conducted in a grid in the area to determine the extent of the lead contamination. The results indicated that soil within the 0-6' soil horizon contained lead concentrations above clean-up standard (200 ppm) recommended by the EPA for this site. In April 1998, 4 cy of surface soil from a 15 x 15 ft was removed from the site to meet the EPA cleanup criteria.

Based on the RI, this site does not pose any further risk because the contaminated soil has been removed.

STATUS

CONTAMINANTS:
Lead
MEDIA OF CONCERN:
Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1997

Northern Perimeter Dump - Cluster 2
EAGQ02-A

SITE DESCRIPTION

The Northern Perimeter Dump is located on the southeastern side of the peninsula, at the northeastern/ end of the Primary Test Area (EAGQ02-C). Surficial debris removed during interim removal actions included empty 55-gallon drums, empty decontamination tanks, empty bleaching powder containers, personal protective equipment, the remains of a latrine and a small cinder-block structure, downed power poles, and various pieces of unidentified laboratory or field equipment. Historical information on the Northern Perimeter Dump is limited, however there is no indication that CWM disposal at the dump. Contamination detected or above RI comparison criteria includes 2 TCL SVOCs and 12 TAL inorganics in surface water; three TAL inorganics in sediment; and 2 TCL VOCs, 1 TCL SVOC, and 9 TAL inorganics in groundwater.

Based on the RI, this site will require no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
SVOCs, VOCs, Inorganics
MEDIA OF CONCERN:
Sediment, Groundwater, Surface Water
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1997

Southern & Southwestern Perimeter Dumps - Cluster 2
EAGQ02-B

SITE DESCRIPTION

The Southern Perimeter Dump is located at the southeastern end of the Primary Test Area (EAGQ02-C); the Southwestern Perimeter Dump is located south of the same site. Historical information regarding these sites is limited; references regarding the Southwestern Perimeter Dump indicate that a small amount of testing was conducted at this site. Unused supertropical bleach containers, empty bleach cans, and debris at the Southern Perimeter Dump were removed in 1993. Partly buried and rusted drums and debris at the Southwestern Perimeter Dump were removed in 1993; the remains of a concrete wall, and a truck (vintage 1940s) were removed in 1994.

Based on the RI, this site will require no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Debris
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1997

Primary Test Area - Cluster 2
EAGQ02-C

SITE DESCRIPTION

Primary Test Area is located on the eastern side of Graces Quarters, southeast of the road that crosses the peninsula. The Primary Test Area was used as a CWM test site from the late 1940s until the early 1970s. Testing with HD took place prior to 1964; between 1964 and 1971, testing included VX, GB, GD, EA3990, and CS. Decontamination agents were sometimes used following testing. Mosquitoes were controlled through applications of organophosphate insecticides. Metallic debris (such as pieces of aircraft) was observed during RI field observations in a linear pushback mound in the southwestern portion of the site. In 1994, APG cleared 22 acres of trees, conducted surface sweeps, and removed debris and UXO to facilitate the conduct of RI fieldwork.

Based on the RI, this site will require no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Debris, UXO
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1997

Service Area - Cluster 3
EAGQ03-A

SITE DESCRIPTION

Service Area is located southwest of the Primary Test Area (EAGQ02-C). This site consisted of a Quonset hut, a boiler house and USTs (EAGQ03-E). The site was primarily used as a change house and shower facility and for equipment maintenance. Surface debris was removed as part of an interim removal action in 1993. In 1994, the Quonset hut was removed to facilitate removal of leaking USTs. Contamination detected or above RI comparison criteria includes four TCL VOCs, three TCL SVOCs, five TCL pesticides, and five TAL inorganics in soil; one agent degradation product and six TAL inorganics in surface water; and one TCL VOC, one TCL SVOC, and five TAL inorganics in groundwater.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
SVOCs, VOCs, Inorganics, Pesticides, Agent Deg. Products
MEDIA OF CONCERN:
Surface Water, Soil, Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FA, IRA
CURRENT IRP PHASE:
RC - 1997

Dugway Proving Ground Test Site - Cluster 3
EAGQ03-B

SITE DESCRIPTION

Evidence suggests that the Dugway Proving Ground Test Site was used for open air testing of CWM. A large tower surrounded by several smaller sampling towers is visible on aerial photographs dated 1970; and some ground scarring is visible on a photograph dated 1971. No visible evidence exists that wastes were buried at this site. Contamination detected or above RI comparison criteria includes three TAL inorganics in soil, two TCL VOCs and six TAL inorganics in surface water, one TCL pesticide in sediment, and four TAL inorganics in groundwater.

Based on the RI, this site requires no further action because it does not pose a risk.

STATUS

CONTAMINANTS:
Pesticides, VOCs
MEDIA OF CONCERN:
Groundwater, Sediment, Surface Water, Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1997

AOC Associated with Site 8 - Cluster 3
EAGQ03-C

SITE DESCRIPTION

This AOC was identified from visual observations during the RI. It is located southwest of the Service Area (EAGQ03-A) and currently consists of 10 small mounds, one pit associated with a mound, and an ephemeral pond. A bald eagle nesting site is also located in the vicinity. No historical information is available regarding this site or what types of materials (if any) may be contained in the mounds, pit, or pond. Contamination detected or above RI comparison criteria includes one TCL SVOC in soil, 11 TAL inorganics in surface water, and one TCL pesticide in sediment.

Based on the RI, this site will require no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Pesticides, SVOCs
MEDIA OF CONCERN:
Sediment, Soil, Surface Water
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1997

Disposal Mounds at Dugway Site - Cluster 3
EAGQ03-D

SITE DESCRIPTION

Disposal mounds were identified in association with the Dugway Proving Ground Site (EAGQ03-B). Laboratory and test equipment wrapped in plastic and scattered on the ground surface was removed in 1993 during a CERCLA Removal Action. Contamination of concern at this site includes PCBs, solvents, UXO, chemical agents, explosive chemicals, heavy metals, chlorinated solvents, non-chlorinated solvents, and low-level radiation.

Based on the RI, this site will require no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Explosives, Metals, PCBs, VOCs, Radiologicals, UXO, Chemical Agents
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1997

USTs at Service Areas - Cluster 3
EAGQ03-E

SITE DESCRIPTION

In May 1995, APG removed and closed two USTs and associated contaminated soil from the Service Area (EAGQ-03-A). Tank 1 was a 1,000-gallon UST located at the left rear corner of the Quonset hut pad. Tank 2 was a 250-gallon UST located near the right front corner of the pad. Rather than backfilling the excavation area with soil, the site was stabilized and a pond was established to enhance the natural wildlife habitat at Graces Quarters.

The removal of the two USTs and associated contaminated soil eliminated a potential source of contamination. Based on the RI, this site will require no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1997

J-Field Study Area
EAJF00

SITE DESCRIPTION

J-Field was used for military purposes as early as 1917; however, the use of the site became more active between WWII and the late 1970s. Use of the site included testing of high explosives and chemical munitions, testing of conventional munitions on structures and buildings, thermal (open burning) and chemical decontamination of chemical munitions, open detonation, and disposal. Chemicals disposed of at J-Field included nerve agents, blister agents, riot control agents, white phosphorus, chlorinated solvents, and drummed chemical wastes generated by research laboratories, process laboratories, pilot plants, and machine and maintenance shops.

Final solution is monitored bioremediation and phytoremediation (TI waiver). The ROD was signed in Sept 2001.

STATUS

CONTAMINANTS: Chemical Agents, White Phosporus, VOCs, Chemical Waste, Metals

MEDIA OF CONCERN: Sediment, Surface Water, Groundwater, Soil

RRSE RATING: High

COMPLETED IRP PHASE:
PA/SI, RI/FS, IRAs, RD, RA

CURRENT IRP PHASE:
RIP (2004) with LTM

FUTURE IRP PHASE:
RIP (2004) with LTM

PROPOSED PLAN

LTM for the whole J-Field area will be funded under this site and will include erosion control.

White Phosphorous Burning Pit
EAJF01

SITE DESCRIPTION

The White Phosphorus (WP) Burning Pits were used for the disposal of WP, munitions filled with WP, and materials contaminated with WP. The disposal was accomplished by detonation and burning. The WP Burning Pits consist of two main pits and three other sites – the Northwestern Suspect Burning Area, the Southwestern Suspect Burning Area, and the Suspect Storage Area. The area has been used as a disposal site since the late1940s or very early 1950s. Low levels of copper, lead, selenium, zinc, and some SVOCs were found in surface soil at the Northwestern Suspect Burning Area; trace levels of 1,4-dithiane were detected in the groundwater adjacent to the site. Low levels of zinc and several types of SVOCs were detected in the soil at the Southwestern Suspect Burning Area. The Suspect Storage Area is not considered a source of contamination.

STATUS

CONTAMINANTS:
Metals, SVOCs, CWM Deg Products
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RD, RA, RA(O)

PROPOSED PLAN

A RI in underway at this site (funded in FY03). Complete a FS. Soil cover may be placed over the open pits to limit contact with contamination. Phytoremediation will possibly be used as groundwater source control. Shoreline stabilization may be needed.

Prototype Building
EAJF02

SITE DESCRIPTION

The Prototype Building is a three-level, reinforced concrete structure constructed during WWII to test the effectiveness of bombs. Since WWII, the building and surrounding area have been intermittently used for temporary storage of solid waste. Two suspect burning areas are associated with this site; however their uses were not documented. Overall, the surface soil around the Prototype Building has slightly higher levels of arsenic, cadmium, copper, lead, mercury, and zinc than the regional background levels. The surface water in the Gunpowder River offshore of this site also exhibited slightly elevated levels of similar metals, which may reflect the past use of this site for bomb testing. PCE and acetone were detected in soil gas; a surface soil sample also showed low levels of several types of SVOCs. No anomalous levels of metals, VOCs, or SVOCs were detected in the two suspect burning areas; therefore, the burning areas do not appear to be contamination sources.

STATUS

CONTAMINANTS:
Metals, VOCs, SVOCs
MEDIA OF CONCERN:
Soil, Surface Water, Soil Gas
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2001

No further action is required under the IRP.

This site is currently active. Testing of this area for CWM is being conducted with non-IRP funds.

CS/CN Area (Riot Control Burning Pits)
EAJF03

SITE DESCRIPTION

The Riot Control Burning Pit was used for disposal by burning of chemicals, chemical-filled munitions, and chemically-contaminated items. Earliest usage of this site would have been the late 1940s. From 1960 until the early 1970s, this site was used for disposal by burning of riot control agents (primarily CS), munitions filled with riot control agents, and material contaminated with these chemicals. Soil contamination at this site is localized, with low to moderate levels of heavy metals in the northeastern and middle sections of the pit; low levels of antimony and arsenic contamination were detected near the southwestern end. Other contaminants found include low levels of petroleum-related SVOCs, benzene, toluene, zylenes, PCE, and TCE. Soil gas data and soil data indicate the presence of petroleum-related compounds, chlorinated methane, ethane, and ethane compounds. Benzene at concentrations as high as 1.5 mg/L were detected in groundwater. Surface water samples contained slightly elevated levels of heavy metal.

STATUS

CONTAMINANTS:
Metals, Petroleum- Related Compounds, VOCs, SVOCs,
MEDIA OF CONCERN:
Soil, Soil Gas, Groundwater, Surface Water
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2001

No further action is required under the IRP.

Robins Point Demolition Ground
EAJF04

SITE DESCRIPTION

The Robins Point Demolition Ground was first used during the late 1970s for the destruction of high explosives and munitions filled with high explosives; in the 1980s, it was used for destruction of a small amount of sensitive and unstable chemicals by detonation with explosives. The original site is now inactive. Of the soil samples collected from the site, one contained 1.1 mg/kg 2,4-DNT explosive and another contained an elevated level of silver. No VOCs, SVOCs, abnormal radioactivity, or CSM/CSM degradation products were found. Surface water samples collected from the marsh east of the site contained elevated concentrations of arsenic, lead, copper, mercury, chromium, cobalt, zinc, and iron; however, these metals were not detected at elevated concentrations in the sediment. Groundwater beneath the active zone of this site did not demonstrate any contamination.

No further action is required under the IRP.

This site is currently active and will be closed under RCRA in the future.

STATUS

CONTAMINANTS:
Explosives, Metals
MEDIA OF CONCERN:
Soil, Surface Water
RRSE RATING:
Medium
COMPLETED PHASE:
PA/SI, RI
CURRENT PHASE:
RC - 2002

Toxic Burning Pit
EAJF05

SITE DESCRIPTION

The Toxic Burning Pits were used extensively from the late 1940s through the 1960s for the disposal of chemical and blister agents by open burning. The pits were used for the demolition of high explosives by open detonation. This site includes a filled VX Burning Pit, a filled Mustard Burning Pit, a small Liquid Smoke Disposal Pit, and a Southwestern Suspect Burning Area.

Disposal in the VX Pit was concentrated in the western section, which is contaminated with moderate to high levels of heavy metals and low levels of chlorinated ethanes and ethenes, petroleum-related compounds, pesticides, dioxins and furans, 1,4-dithiane, and phthalates. UXO may also be present.

The Mustard Burning Pit was not fully characterized, due to the potential presence of UXO; surface soil near this pit contains high levels of heavy metals. CSM degradation products were detected in two subsurface soil samples.

STATUS

CONTAMINANTS:
Metals, VOCs, Pesticides, Dioxins/Furans, Chemical Agent Deg. Products
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA, LTM
CURRENT IRP PHASE:
RC - 2001

High levels of titanium and heavy metals were detected in the soil at the Liquid Smoke Disposal Pit.

The surface soil in the Southwestern Suspect Burning Area contains heavy metals.

The selected remedial alternative identified in the ROD for this site is removal of the hot spots of contamination from the soil OU, followed by construction of a protective soil blanket over this soil OU, and shoreline erosion control protection. Due to the cost prohibitive nature of the continued excavation, an ESD has been completed (specifying covering the pits with a permeable soil barrier). The PSB was constructed. No further action is needed.

TBP - Southern Main Pits Overall
EAJF05-A

SITE DESCRIPTION

The Toxic Burning Pits (EAJF05) include two exposed Main Burning Pits. These pits, referred to as the Northern Main Pit and Southern Main Pit, were also used extensively from the late 1940s through the 1960s for the disposal of chemical and blister agents by open burning. The soil at the two Main Burning Pits, underlying the pits, and near both ends of the pits was contaminated with heavy metals, chlorinated solvents, phthalates, SVOCs related to petroleum products, PCBs, and pesticides.

The contamination was localized and varied spatially. Specific soil contaminants in the Northern Main Pit included high concentrations of arsenic, cadmium, chromium, copper, mercury, nickel, antimony, zinc, chlorobenzene, ethylbenzene, toluene, and xylenes. At the Southern Main Pit, PCBs and chlorinated ethanes and ethenes are prominent contaminants in the soil, with concentrations increasing with depth. Metal contamination is moderate and occurs in the soil near the ground surface. A Pushout Area associated with these pits consists of debris that has been pushed out of the burning pits over time and has filled in 30 -50 ft of a downgradient freshwater marsh. Lead and zinc concentrations in some soil samples collected from the Pushout Area were found to be greater than 8%.

STATUS

CONTAMINANTS:
Metals, VOCs, SVOCs, PCBs, Pesticides
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC - 2001

The selected remedial alternative identified in the ROD for this site is removal of hot spots of contamination from the soil operable unit, followed by construction of a protective soil blanket over this soil operable unit, and shoreline erosion protection. Due to the cost prohibitive nature of continued excavation, an ESD has been completed (specifying covering the pits with a protective soil barrier). The PSB was constructed.

TBP - Surficial Aquifer
EAJF05-B

SITE DESCRIPTION

The J-Field surficial aquifer was affected by the disposal activities at the Toxic Burning Pits. The surficial aquifer is recharged by precipitation, with its recharge center at the Main Burning Pits. Groundwater flows out from the recharge area in directions ranging from south-southeast to northeast, spreading contaminants (especially VOCs) to the eastern part of the Toxic Burning Pits and under the marsh east of the pits. Very high concentrations of 1,1,2-TCE, 1,2-DCE, TeCA, PCE and TCE have been detected in the surficial aquifer monitoring wells since 1986. DNAPLs have been detected, and the high concentration of TeCA in the groundwater and soil suggests that free-phase DNAPL is present in the subsurface. Heavy metals and low levels of CSM degradation products have also been detected.

Due to earlier poor well construction the upper confined aquifer has been contaminated with chlorinated solvents.

Various remedial responses were investigated as part of the FFS on the groundwater operable unit, including a pilot-scale phytoremediation project. A draft FS was published in February 2000, and the Proposed Plan was published in March 2001. The preferred alternative for this surficial aquifer is a combination of institutional controls, phytoremediation and monitored degradation process.

STATUS

CONTAMINANTS:
VOCs, Metals, Chemical Agent Deg. Product
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC - 2002

The preferred RA for the upper confined aquifer is to monitor the site. Well JF51 will be abandoned and replaced. A degradation agent may be added to the confined aquirfer.

These actions will be funded under EAJF05.

South Beach Demolition Ground
EAJF06

SITE DESCRIPTION

The South Beach Demolition Ground was used as a demolition site for high-explosive munitions during the 1960s, 1970s, and possibly the 1950s. Most of the demolition was conducted on a stretch of a previous 400-feet-wide beach, which has eroded to approximately 50-feet off-shore in Chesapeake Bay. Metal debris was reportedly visible about 100 feet offshore during low tide. Surface water collected offshore near this site exhibits slightly elevated concentrations of zinc. Nickel, chromium, and mercury were detected above corresponding method detection limits in some samples. Several metals, phenol, and total organic halogen were also present in one unfiltered surface water sample. The metals could be associated with past munitions disposal activities at the demolition ground.

This site was determined to have no risk, and therefore no further action is needed.

This site is covered under the J-Field Record of Decision signed in Sept 2001.

STATUS

CONTAMINANTS:
Debris, Metals, Phenol, Total Organic Halogen
MEDIA OF CONCERN:
Sediment, Surface Water
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2001

South Beach Trench
EAJF-07

SITE DESCRIPTION

The South Beach Trench includes one trench approximately 75-feet-long (South Beach Trench) and a suspect trench approximately 300-feet-long. No information has been found regarding past use of this area. One surface water sample and two sediment samples collected from the South Beach Trench indicate that this site is not a contamination source. No TCL organics, pesticides, PCBs, CSM/CSM degradation products, or explosives-related compounds were detected in the surface water and sediment samples. These samples showed only insignificantly elevated levels of a few metals when compared with the background or the method detection limits. A soil boring in the Western Trench showed an insignificant level of di-n-butylphthalate in soil; however, no other contaminants were found.

This site was determined to have no risk, and therefore no further action is needed.

This site is covered under the J-Field Record of Decision signed in Sept 2001.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2001

X1 Ruins Site Southwest of Intersection
EAJF08

SITE DESCRIPTION

The X1 Ruins Site was present on an aerial photograph as early as 1951. It currently consists of two ruins subsites, separated by approximately 100 feet. Collapsed concrete columns, building foundations, and soil piles were observed in the field. Three shallow depressions were identified near the site. The past use of the X1 Ruins Site is unknown. Magnetic anomalies were detected in the two depressions surveyed. The third depression was not surveyed because no evidence of soil disturbance was present. Surface soil samples collected in 1996 showed levels of lead, mercury, and selenium at or above background.

This site was determined to have no risk, and therefore no further action is needed.

This site is covered under the J-Field Record of Decision signed in Sept 2001.

STATUS

CONTAMINANTS:
Buried Anomalies, Metals
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2001

Drainage Grid - Area A
EAJF09

SITE DESCRIPTION

The Drainage Grid is a swampy area which includes three prominent trenches. The past use of the trenches is unknown. Magnetometry surveys conducted along two of the three trenches did not detect any metal debris. Although results of the soil gas samples collected from the three trenches suggest the presence of anthropogenic organic compounds in two of the three trenches, sediment samples from those trenches revealed no organic contamination source or anomalous metal contents. It is inferred that the trenches are not contamination sources.

This site was determined to have no risk, and therefore no further action is needed.

This site is covered under the J-Field Record of Decision signed in Sept 2001.

STATUS

CONTAMINANTS:
Organic Compounds
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2001

Ford's Point Firing Range - Area B
EAJF10

SITE DESCRIPTION

The Ford's Point Firing Position is a large open area near the north-eastern part of J-Field and adjacent to the Bush River. Concrete slabs are piled up near the shore of the river, most likely to protect the shore against erosion. The use of the site is unknown. An x-ray fluorescence field survey and surface soil sampling were conducted at this site. Surface soil samples collected in 1996 showed levels of cadmium, copper, lead, nickel, and zinc above background in the central and southern portion of the site.

This site was determined to have no risk, and therefore no further action is needed.

This site is covered under the J-Field Record of Decision signed in Sept 2001.

STATUS

CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2001

Ruins Site Northeast of Intersection - Area C
EAJF11

SITE DESCRIPTION

Area C is a ruins site near the northern part of J-Field. Remnants of a standing concrete wall and bricks were found on the ground surface in the field. Bomb craters are visible near the site. Surface soil samples were collected in 1996; except for lead and mercury, metals concentrations were below background.

This site was determined to have no risk, and therefore no further action is needed.

This site is covered under the J-Field Record of Decision signed in Sept 2001.

STATUS

CONTAMINANTS:
Lead, Mercury, Debris
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2001

Ruins Site Across Road from WWP (RNS Site)
EAJF12

SITE DESCRIPTION

This ruins site includes two building ruins, two connected artificial ponds, remnants of four retaining wall structures, a suspect filled trench, and an old open area in the southwestern part of the site. This site was used for munitions testing in WWII. The Ruins Site is slightly contaminated with heavy metals in places. Slightly elevated levels of barium, cadmium, chromium, copper, and lead were found in 2 of 12 sediment samples collected around the two building ruins in the eastern part of the site. The contamination is likely related to ammunition testing on the buildings. A slightly elevated level of cadmium was also found in one of eight pond sediment samples. No consistent anomalies were found in the electromagnetic and magnetic data collected at the suspect filled trench. It is inferred that the suspect filled trench could have been an old road bed. The old open area in the southwestern part of the site did not show any elevated metal contents in surface soil.

This site was determined to have no risk, and therefore no further action is needed.

This site is covered under the J-Field Record of Decision signed in Sept 2001.

STATUS

CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Sediment
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2001

Swamp 400'E of Ruins Site - Area D
EAJF13

SITE DESCRIPTION

Area D is a flooded swamp dotted with many craters. No road extends to this site, which was probably used for either bomb testing or targeting. The main concern at this site is the potential contamination in the craters. Evaluation of the site has been incorporated in a site-wide study of the craters at the J-Field Study Area. In total, 19 sediment samples were collected in 16 craters distributed in upland and low-lying marsh areas. All samples were analyzed for TCL metals. Five samples were also analyzed for explosives-related compounds. The analytical results indicated that most craters did not have metal contamination. Sediment samples that showed slightly elevated metal concentrations generally tended to be associated with demolition grounds and may be related to past demolition activities. No contamination from explosives-related compounds was found.

This site was determined to have no risk, and therefore no further action is needed.

This site is covered under the J-Field Record of Decision signed in Sept 2001.

STATUS

CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Soil, Sediment
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2001

Robins Point Tower Site
EAJF14

SITE DESCRIPTION

The use of the Robins Point Tower Site began in the 1950s for launching and observing rockets; it also was reported as a possible site for test burning of radioactively contaminated wood. Two radioactivity field surveys conducted at this site did not detect any significant anomalies, and the subsequent soil samples collected at the site showed no radiological contamination. Only slightly elevated levels of selenium, mercury, and benzo(b)fluoranthene were detected in three soil samples. These elevated readings are not significant. No volatiles were found in groundwater samples collected in 1994. A surface water sample collected from a bomb crater had a slightly elevated level of lead and a significantly elevated level of zinc.

This site was determined to have no risk, and therefore no further action is needed.

This site is covered under the J-Field Record of Decision signed in Sept 2001.

STATUS

CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Surface Water
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2001

Concrete Slab Dump Area 1 - Cluster 5
EALC05-C

SITE DESCRIPTION

The Concrete Slab Dump Area 1 lies immediately south of the Concrete Slab Test Area and was used as a waste disposal site from WWII until the early 1970s. During the 1970s and early 1980s, the Army conducted limited cleanup activities at the site and removed munition items. The dump area contains a small bunker, fence posts, and several mounds of scrap metal from weapons testing activities. Mounds containing buried metallic wastes, scrap metal, and test item remnants are found from the southern edge of the concrete slab, extending ~200 ft in a southeast to northwest direction.

Field sampling activities were performed under a Focused Feasibility Study (FFS) to further define the extent of metals contamination in the soil. Elevated concentrations of metals were found in the soil, including lead (354 mg/kg) and arsenic (9.2 mg/kg). The FFS was completed in FY01.

A Decision Document was completed in Jan 03, stating that waste-contaminated soil will be removed and LTM of downgradient sediments will continue. The removal was funded in FY03 and will be completed in FY05. The ROD was signed in August 2004.

STATUS

CONTAMINANTS:
Metals, Buried Waste
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA, RD, RA
CURRENT IRP PHASE:
RIP (2004) with LTM
FUTURE IRP PHASE:
RIP (2004) with LTM

PROPOSED PLAN

Continue LTM.

Any current or future action at EALC05-D will be funded under this site.

Surficial Aquifer - Cluster 9
EALC09-F

SITE DESCRIPTION

Groundwater sampling results have identified trichloroethene (60 ug/L), 1-1-dichloroethene (11 ug/L), and nickel (194 mg/L) in the surficial aquifer of the Cluster 9 Nike Missile Battery Control Area at concentrations exceeding Applicable or Relevant and Appropriate Requirements (ARARs)(i.e., maximum contaminant levels). The chlorinated solvents present in the Cluster 9 surficial aquifer groundwater are in a dissolved phase. Based on previous investigations and validated analytical results, the likely source of these VOCs is from past disposal of chlorinated solvents within the northern portion of the Nike Control Dry Wells near Buildings E6833 and E6836. DNAPLs were not detected by the interface probe used to test the surficial aquifer monitoring wells.

The Risk Assessment (FY01) concluded acceptable risk from potential future industrial use.

EPA requested (in early 2002) additional samples be taken since the contamination levels are above MCLs. Additional geoprobe sampling (in FY03) showed total VOCs up to ~500ppb.

STATUS

CONTAMINANTS:
VOCs, Nickel
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA, LTM

PROPOSED PLAN

The RI/FS will be completed (funded in FY03). Groundwater treatment and monitored natural attenuation may be needed.

Surficial Aquifer - Cluster 13
EALC13-D

SITE DESCRIPTION

Cluster 13 was the site of extensive decontamination training. Cluster 13 contains chlorinated solvent contamination (~25 acre plume) in the surficial aquifer (up to 96,000 ug/L total VOCs). The Baseline Risk Assessment for Cluster 13 calculated the total excess lifetime cancer risk associated with ingestion of the groundwater by site workers from the Cluster 13 surficial aquifer as 4×10^{-3} with a Hazard Index of 2.0. The Cluster 13 RI Report recommended plume delineation and implementation of an FFS to evaluate potential volatile organic compound-contaminated groundwater remedial alternatives. Several FFS field activities (i.e., collection of groundwater, surface water, and sediment pore water samples; installation of drive points; direct push sampling; sampling for natural attenuation parameters; and collection of groundwater elevation data) were completed in October 1998.

The field activities indicate that natural attenuation processes are very active in this area, destroying much of the contamination as the groundwater discharges into the neighboring marsh areas. Several alternatives are applicable to address the solvent contamination in the groundwater; however, remediation will most likely combine source control and/or active remediation with natural attenuation.

STATUS

CONTAMINANTS:
VOCs
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA, RA(O)

PROPOSED PLAN

In-situ remediation/source removal is planned, followed by LTM.

Lauderick Creek
EALC00

SITE DESCRIPTION

The Lauderick Creek Study Area is located along the installation boundary in the northeast corner of the APG-EA. This study area includes the entire area east of the Edgewood Road Gate, bordered on the north by the installation boundary, on the south by Lauderick Creek, and on the east by Bush River. Lauderick Creek was used by the U.S. Army Chemical School between 1920 and 1951 for a wide variety of chemical warfare training activities. These activities would have included the use and firing of chemical ordnance such as grenades, Livens projectiles, and mortar rounds; identification of chemical agents and decontamination of personnel, vehicles, and other equipment; clothing impregnation and laundering; and handling and service of chemical warfare equipment such as bulk ton storage containers. The chemical ordnance used in training activities would have included smoke and tear gas, high explosives, and lethal agent-filled munitions. As a result of the U.S. Army Chemical School activities, CWM and ancillary UXO have been found, and may still be present, in the Lauderick Creek Study Area.

On-going CWM Investigation/Removal along the Lauderick Creek Installation Boundary was completed in FY04.

STATUS

CONTAMINANTS:
CWM
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRAs, RA
CURRENT IRP PHASE:
RC - 2004

Nike East Woods Site 6 - Cluster 5
EALC05-A

SITE DESCRIPTION

The Nike East Woods Site 6 lies adjacent to the south side of Mallard Road, approximately 200 ft west of the intersection of Mallard and Pintail Roads. A 1958 aerial photograph shows ground scars, indicating possible disposal activity in an area of cleared vegetation north of the Concrete Slab Test Area. The site, estimated to have been active from 1940 to 1957, consists primarily of construction debris. Beryllium, iron, and manganese concentrations in sediment and surface soil samples at the Nike East Woods Site 6 do not pose human health or ecological risks.

Based on the RI, this site requires no further action because it does not pose a risk.

STATUS

CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1999

Concrete Slab Test Area - Cluster 5
EALC05-B

SITE DESCRIPTION

The U.S. Army Chemical School constructed the Concrete Slab Test Area and first used the area during WWII for the testing of incendiary munitions and pyrotechnic/flame-thrower projects. These testing activities continued through the 1950s/1960s and possibly into the early 1970s. Aerial photography from the 1950s shows a rectangular open area, 350 x 300 ft, that was bare of vegetation adjacent to the north-west side of the concrete slab. Field inspections revealed that wastes from test activities were dumped adjacent to the test site. Additional site features include the presence of a large concrete slab, vertical concrete wall, and two small support buildings. A 1,000-gallon petroleum UST, located approximately 50 ft north of Building E6891 in the Concrete Slab Test Area was removed in 1997. The Concrete Slab Test Area has been characterized by geophysical survey, X-ray diffraction, and soil sampling and analysis. Future remedial actions for waste, soil, and sand pile areas within the Concrete Slab Test Area are addressed as specific sites under the DSERTS Nos. EALC05-C, Concrete Slab Dump Area 1 and EALC05-D, Concrete Slab Dump Area 2.

Based on the RI, the Concrete Slab requires no further action because it does not pose a risk.

STATUS

CONTAMINANTS:
Buried Wastes
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1999

Concrete Slab Dump Area 2 - Cluster 5
EALC05-D

SITE DESCRIPTION

The Concrete Slab Dump Area 2 lies immediately east of the Concrete Slab Test Area and was used as a waste disposal site in conjunction with the Concrete Slab Dump Area 1 (DSERTS No. EALC05-C). Remnants of a fence and scrap metal piles are scattered throughout the area. In 1994-1995, potentially contaminated surface material was removed from the Cluster 5 Concrete Blast Slab Area. During this effort, 11 vehicle saddle-type fuel tanks, each consisting of a pair of interconnected 40-gallon capacity tanks and empty drums, were removed from Dump Area 2. Geophysical investigations during the RI identified two elongated trenches running parallel to the concrete slab. Metallic wastes and scrap metal piles are within and around the buried trenches. Field sampling activities were performed under a FFS to further define the extent of metals contamination in the soil. Elevated concentrations of metals were found in the soil, including lead (2,480 mg/kg) and arsenic (11.1 mg/kg).

Hot spot removal is planned, funded under EALC05-C.

STATUS

CONTAMINANTS:
Metals
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 2000

Nike Control Dry Wells (4) - Cluster 9
EALC09-A

SITE DESCRIPTION

Four dry wells were located within Cluster 9 Nike Missile Battery Control Area. Active between 1954 and 1973, the Control Area contained the radar, electronic, and communications equipment for target identification, target tracking, missile launching, and missile guidance. The dry wells probably received small quantities of liquid waste generated by electronics maintenance activities, with constituents including chlorinated solvents. The Nike Control Dry Wells have been filled in with soil, gravel, and/or concrete. Additional investigation work at this site included a nonintrusive radiation survey which did not reveal any levels of radiation above background levels.

Based on the RI, this site requires no further action because it does not pose a risk.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1999

Nike Central Septic Tanks/ Sand Filter - Cluster 9
EALC09-B

SITE DESCRIPTION

The Nike Control Septic Tanks/Sand Filter septic system consists of five- 1,000-gallon underground tanks, a subsurface sand filter bed, and a downgradient baffle tank and outlet pipe. Use of the Control Area wastewater system stopped when operations at the Cluster 9 Nike Missile Battery Control Area ceased in the early 1970s. Sludge samples collected from septic tanks in 1992 detected PAHs (e.g., 2-methylnapthalene at 15,000 mg/L), pesticides (i.e., aldrin at 59 mg/L), and metals (e.g., beryllium at 0.645 mg/kg) that exceeded upper reference limits or RBCs.

A CERCLA Removal Action to abandon the septic system was completed during FY2000. No further action is required.

STATUS

CONTAMINANTS:
PAHs, Metals, Pesticides
MEDIA OF CONCERN:
Sludge
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, RA
CURRENT IRP PHASE:
RC - 2000

Nike Central Underground Fuel Tank (Excavated) - Cluster 9 EALC09-C

SITE DESCRIPTION

Two underground storage tanks (USTs) were associated with the former Nike Missile Battery Control Area. One UST was located south of Building E6833 and the other UST was located at the south end of the gravel road, west of the abandoned Building E6844. Each tank had a 6,000-gallon capacity and was used to store diesel (fuel oil). None of the compounds detected in either tank met hazardous waste criteria. Analytical results of soil samples near the USTs in the unsaturated zone indicated concentrations of fuel oil compounds. The two tanks, their contents, and contaminated soil were removed as part of a Consent Order with the Maryland Department of the Environment (MDE) in 1994. After confirmatory analytical sampling, the excavated holes were backfilled with clean soil and the areas graded to their original ground surface.

Based on the RI, this site requires no further action because it does not pose a risk.

STATUS

CONTAMINANTS:
Fuel & Oil Compounds
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1999

Nike East Woods Site 1 - Cluster 9 EALC09-D

SITE DESCRIPTION

The Nike East Woods Site 1, a grass-covered site with areas of subsidence, is located east of Buildings E6833 and E6836. Aerial photography from 1958 indicates disposal activities at the site; however, no records exist of any dumping activities. Field examination in 1995 revealed an empty 55-gallon drum and small pieces of scrap metal scattered on the ground surface.

Based on the RI, this site requires no further action because it does not pose a risk.

STATUS

CONTAMINANTS:
Scrap Metal
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1999

School Field #1 Test Areas (2) - Cluster 13
EALC13-A

SITE DESCRIPTION

From 1920 to 1951, the U.S. Army Chemical School used the area for a variety of chemical warfare-related training activities. The School Field I Test Areas located in the northwest portion of Cluster 13, lie adjacent to and south of the installation boundary. Aerial photography from 1929 indicates activity in an area of cleared vegetation in the north-central portion of School Field I. During the 1950s and 1960s, the Army used the area to conduct flame-thrower test activities using thickened fuel materials. Aerial photographs from 1951 and 1958 show ground scarring within the north-central portion of the site, which is not visible today. From the 1970s to 1990, ARL's Human Research and Engineering Directorate of Field Ammunition Supply Training has occupied 80 acres within the site to conduct training in safe munitions handling. The area is currently used by ARL for cow powered EMP tests.

Based on the RI, this site requires no further remedial action since it does not pose a risk.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1999

School Field #2 Dumps - Cluster 13
EALC13-B

SITE DESCRIPTION

School Field II is located immediately adjacent to School Field I (DSERTS No. EALC13-A). Significant dump sites were identified on either side of a northwest-southeast earthen road running that through the School Field II area. Dump sites were also found in the northwestern portion of the School Field II area just east of the former building area. Sites consisted of small piles of drums and cans of M-4 thickener for flame-throwers including decontaminating bleach cans, empty or expended 4.2-inch mortars and rockets, and miscellaneous debris, such as construction material that had been dumped and/or buried. Field reconnaissance personnel also found the remains of old airplanes in this area. Most of these dump sites were located within drainage swales, which flow south toward the Lauderick Creek marshes. The School Field II area also contained randomly scattered construction debris (i.e., concrete and wood materials). A removal action in 1994/1995 removed all of the potentially contaminated surface materials located at these small dump sites including drum piles, remnants of expended UXO, airplane parts, and construction debris.

Based on the RI, this site requires no further action because it does not pose a risk.

STATUS

CONTAMINANTS:
Potentially contaminated Surface material
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1999

Underground Storage Tanks - Cluster 13
EALC13-C

SITE DESCRIPTION

A variety of training activities were conducted from 1920 to 1951 in Cluster 13 of the Lauderick Creek Study Area. In 1996, an UST was removed from the Cluster 13 School Field Number I Test Area. Post-excavation soil sampling determined that there was no petroleum contamination over the 100 ppm TPH action level.

Based on the RI, this site requires no further action because it does not pose a risk.

STATUS

CONTAMINANTS:
Petroleum Products
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1999

East Woods Disposal Area - Cluster 17
EALC17-A

SITE DESCRIPTION

Cluster 17 East Woods Disposal Areas contains four potential source areas: the Nike East Woods Site 2, 3, 4, and 5.

The Nike East Woods Site 2 lies adjacent to the southwest side of Mallard Road, ~750 ft southeast of the intersection of Mallard and Canvasback Roads. Aerial photography from 1958 indicates activity involving the possible storage of 55-gallon drums. Visual inspections did not find any evidence of drum storage or surface debris.

The Nike East Woods Site 3 is located along the northeast side of Mallard Road, and is ~200 ft southeast of Nike East Woods Site 2. A 1958 aerial photograph revealed a ground scar area at this location, indicating possible disposal activities. Surface material was visible at the site in the aerial photograph. Visual examination of the site revealed large, intermittently placed piles of debris (mostly concrete) mixed with earthen material extending 200 feet in length alongside Mallard Road.

STATUS

CONTAMINANTS:
Debris
MEDIA OF CONCERN:
Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1999

The Nike East Woods Site 4 lies 500 ft east of Nike East Woods Site 3, north of Mallard Road. Site inspections indicate that the area is a small, unobtrusive pile of debris and soil.

The Nike East Woods Site 5 lies 400 ft west of Pintail Road where disposal activities probably occurred from 1940 to 1957; however, detailed information on activities at the site is not available. The site consists of buried and exposed debris within a clearing in the woods.

Based on the RI, this site requires no further action because it does not pose a risk.

School Field #3 Test Area - Cluster 20
EALC20

SITE DESCRIPTION

The Cluster 20 School Field III, located in the northwest portion of Other Lauderick Creek Clusters, lies adjacent to and south of the installation boundary and northeast of Cluster 13 School Fields I and II. Review of aerial photography indicates the U.S. Army Chemical School first used the area during the 1940s or early 1950s, and that use continued until the late 1960s or early 1970s. The aerial photography showed activity in an area cleared of vegetation and ground scarring in the north-central portion of Cluster 20 School Field III. Records regarding the type of wastes generated by the test activities are not available. Site inspections of Cluster 20 School Field III identified three small dump sites. The first dump site consisted of a small amount of abandoned test equipment in the northern portion of the test area, south of Wolf Road. A second dump site was southwest of the cannon and consisted of several pressurized containers in the shape of offset barbells. The third dump site contained a pile of empty drums in the southern portion of Cluster 20 School Field III. Cluster 20 School Field III also had approximately 80 discarded tires randomly scattered throughout the area. Potentially contaminated surface material was removed as part of a CERCLA Removal Action at Cluster 20 School Field III during 1994 and 1995. Media sampling and analysis indicate limited environmental impacts from the Cluster 20 School Field III.

Based on the RI, this site requires no further action because it does not pose a risk.

STATUS

CONTAMINANTS:
Debris, Potentially contaminated material
MEDIA OF CONCERN:
Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1999

Gum Point Dredge Spoils - Cluster 32
EALC32

SITE DESCRIPTION

The Cluster 32 Gum Point Dredge Spoils Area is located in the most extreme northeast corner of the Lauderick Creek Study Area. The cluster is bounded by the Bush River to the east, a creek to the west and south, and the installation boundary to the north. A portion of the cluster served as a dredge material disposition site, which aerial photography indicates was used sometime during the 1960s and 1970s. There is no available information to indicate that the spoil contained hazardous constituents. The area contains miscellaneous debris scattered on the surface primarily from trespassers. Old wooden piers or pilings, and a partially submerged wooden barge are on the eastern portion of the cluster in the river. Further evaluation of Cluster 32 was performed as per the recommendation of the RI Report, which identified potential ecological risks from mercury (3.7 mg/kg) and diethylphthalate (5,500 mg/L) contamination onsite. The additional sampling revealed that the contamination is not significant (i.e., mercury was detected in concentrations of 0.03 to 0.08 mg/kg; no diethylphthalate was detected).

No further action is recommended for the site.

STATUS

CONTAMINANTS:
Debris, Mercury
MEDIA OF CONCERN:
Dredge Spoils
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1999

Monks Creek Farm Site - Cluster 33
EALC33

SITE DESCRIPTION

Cluster 33 Monks Creek Farm Site is located approximately 1,200 ft south of Monks Creek and 900 ft west of Bush River. This site is the location of a farmstead that existed prior to the land becoming government property in 1917. Review of aerial photography from 1936 to 1989 shows fewer trees and a small amount of ground scarring indicating activity at the site. It is likely that the U.S. Army Chemical School used the farm site for training activities, vehicle parking, and as a staging area. Site inspections revealed the presence of expended smoke grenades and miscellaneous debris, including an old engine block. The ground scar areas revealed by aerial photography now correspond to areas containing grass but void of tree growth. Currently, the Maryland Army National Guard uses the site for training.

Based on the RI, this site requires no further action because it does not pose a risk.

STATUS

CONTAMINANTS:
Debris
MEDIA OF CONCERN:
Soil
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1999

Unconfined Groundwater
EANS01-A

SITE DESCRIPTION

A surficial aquifer of hydraulically unconfined groundwater exists in the upper 40 ft of stratigraphy at the Nike Site. Groundwater sampling performed during the RI identified a plume of TCE in the surficial aquifer at concentrations up to 299 ug/L. The exact source of the TCE contamination is unknown. Based on collected water level data, the predominant direction of groundwater flow in the vicinity of the site is to the south-southeast; however, a small component of groundwater flows north toward the Installation boundary. The TCE plume extends beyond the boundary. The groundwater in this area is not used as a drinking water source.

A ROD for the installation of extraction wells and construction of a groundwater remediation system to treat the TCE was signed in September 1996. An ESD to change the treatment technology from reductive dehalogenation to liquid-phase carbon adsorption was issued in October 1998. The treatment system began 24-hour operation in January 2000 and treats ~450,000 gallons per week.

STATUS

CONTAMINANTS:
TCE
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RIP (1999) with RA(O)
FUTURE IRP PHASE:
RIP (1999) with RA(O)

PROPOSED PLAN

Based on the ROD, the contaminated groundwater is being extracted and treated above ground using granular activated carbon until the concentration of TCE is less than the MCE (5 mg/L).

Southwest Launch Landfill
EANS01-D

SITE DESCRIPTION

The Southwest Launch Landfill is approximately 1.1 acres and contains primarily construction debris and some asbestos materials. In addition, several 55-gallon drums labeled “hydraulic fluid” were found lying empty on their sides at the site, which suggests waste may have been disposed of there.

A ROD for this site was signed in September 1996. The ROD called for an impermeable cap comprised of several layers: the waste materials; a cover soil layer; layers of geotextile, including a gas collection layer; an impermeable clay (bentonite) layer; an impermeable, low-density polyethylene layer; a water conveyance layer; a fill material layer; a topsoil layer; and a layer of vegetation over the top. Construction of the former Nike Site Launch Southwest Landfill cap was completed in June 1998.

STATUS

CONTAMINANTS:
Debris, Asbestos
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA, RD, RA
CURRENT IRP PHASE:
RIP (1998) with LTM
FUTURE IRP PHASE:
RIP (1998) with LTM

PROPOSED PLAN

Long-term monitoring of the Southwest Launch Landfill cap will continue.

Nike Site - Cluster 01
EANS00

SITE DESCRIPTION

This site is not in DSERTS.

The Nike Site, also referred to as Cluster 1 of the Lauderick Creek Area, is a 300-acre portion of the Lauderick Creek Area. The Lauderick Creek Area was used by the U.S. Army Chemical School for a wide variety of chemical warfare training activities between 1920 and 1951. The Nike Site, constructed in School Fields IV and VII, was used for the deployment of Nike antiaircraft missiles between 1954 and 1973. The Nike Site consists of the Launch Area, the Barracks Area, and the Control Area. The Control Area is being investigated under CERCLA as part of the Lauderick Creek Study Area (EALC00). Many of the structures of the former Nike Missile Battery have been demolished and the missiles were removed from the silos when the Nike Site was decommissioned in 1973. The area is now leased by APG to the Army National Guard. Contaminants of concern identified during the RI/FS phase include UXO, chemical agents, heavy metals, and asbestos.

A CWM removal action is planned for a portion of the Lauderick Creek Area and includes the Nike Site. The removal action is included under EALC00.

STATUS

CONTAMINANTS:
UXO, Chemical Agents, Heavy Metals, Asbestos
MEDIA OF CONCERN:
Soil
RRSE RATING:
NE
COMPLETED PHASE:
PA/SI, RI/FS, IRA
CURRENT PHASE:
RC

Confined Groundwater
EANS01-B

SITE DESCRIPTION

A second aquifer exists in the Nike Site approximately 40 ft below the unconfined surficial aquifer. This deeper aquifer is hydraulically confined by a clay layer, which impedes hydraulic communication with the surficial aquifer. Flow direction within the confined groundwater body is predominantly southeastward. VOCs and SVOCs were detected in groundwater samples collected from the confined aquifer during the RI; however, no contamination plume is evident.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
VOCs, SVOCs
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1996

Launch Area Septic System
EANS01-C

SITE DESCRIPTION

The septic system which handled sewage from the Launch Area is no longer functional; however, its components (i.e., ejector station, manhole, septic and siphon tanks, lines, and sand filter beds) are still in place. Based on the results of the RI, the Launch Area septic system was found to contain relatively small volumes of sludge and residue contaminated with a variety of chemicals, including heavy metals, solvents, and pesticides. The contamination appeared to be confined within the sewer lines; however, a potential existed for contaminants to be released to the environment if groundwater infiltrated the deteriorating lines or rainwater flushed the contaminants out of the lines and into the surrounding soil. A ROD to flush, clean, fill, and abandon the system in place was signed in September 1996. These activities were completed in August 1997.

The remedial actions detailed in the September 1996 ROD were completed in August 1997; no further action at this site is anticipated.

STATUS

CONTAMINANTS:
Metals, Solvents, Pesticides
MEDIA OF CONCERN:
Sludge
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, RD, RA
CURRENT IRP PHASE:
RC - 1997

Underground Fuel Tank (E6871)
EANS01-F

SITE DESCRIPTION

An abandoned underground 10,000-gallon fuel oil storage tank was located in the launch area immediately east of Building E6871. The quantity of fuel oil remaining in the tank was unknown; however, it is likely that the tank was water-filled with only a small amount of oil in the filler pipe. An area of oily, stained soil was observed adjacent to this fill pipe of this UST in the late 1980s. This discovery led to the excavation and removal of the tank in September 1991; most of the oil-contaminated soil was removed.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Fuel Oil
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1996

Underground Fuel Tanks Barracks Area
EANS01-G

SITE DESCRIPTION

Fuel oil for space heating the Nike Barracks Area was stored in five USTs. Considering the age (approximately 40 years), it is reasonable to presume that no corrosion protection techniques were used during installation; however, there is no evidence of leakage from these tanks. The five USTs were removed under a consent order with Maryland Department of the Environment.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Fuel Oil
MEDIA OF CONCERN:
Soil, Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1996

Nike Barracks Septic System
EANS01-H

SITE DESCRIPTION

The Nike Barracks Septic System consisted of a septic tank, filter bed, chlorination building, and discharge line. It is generally regarded that significant amounts of waste chemicals were probably not disposed in the Barracks Area because they were not used there. The septic system was shut down after the Nike battery was decommissioned in 1973. The chlorination building and discharge line were removed in May 1995. No contamination of concern was identified during the RI.

Based on the RI, this site requires no further action because it does not pose a risk.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1996

Launch Surface Drainage System
EANS01-I

SITE DESCRIPTION

Controlled drainage of surface water was accomplished by a system of culverts, curbs, and ditches surrounding the Launch Area, including a set of concrete-lined ditches descending from the paved area surrounding the missile vaults. EANS01-I also includes the Vehicle Wash Pad, a French drain, and a subsurface drainage system. The Vehicle Wash Pad is a concrete slab near the east corner of the Launch Area, where wash down of the facility support vehicles presumably occurred. The French Drain is a subsurface feature indicated on engineering drawings for the Launch Area; however, its presence is not supported by physical evidence or subsequent engineering drawings. The subsurface drainage system consisted of 6-inch vitrified clay pipe which drained the six missile vaults. Small concentrations of acid, electrolyte, solvent, chlorinated solvent, non-chlorinated solvent, and petroleum contaminants below RBCs were detected during the RI.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
Acid, Electrolytes, Solvents, Petroleum Contaminants
MEDIA OF CONCERN:
Soil, Groundwater, Surface Water
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1996

Berms & Disturbed Soil Areas
EANS01-J

SITE DESCRIPTION

EANS01-J consists of the berms and disturbed soil areas, the Southeast Groundscar, the Fueling/Defueling Area, Bermed Area #2, and the Missile Maintenance Area. The Southeast Groundscar Area consists of a few low soil piles near a poorly-defined drainage ditch. The Fueling/Defueling Area had several associated buildings and features including an acid fueling station, an acid storage building, and a warheading building (Building E6875). Two protective earthen berms largely encircled the fueling station and Building E6875. Bermed Area #2 is a site very similar to the Fueling/Defueling Area; however, the use of this area is unknown. The Missile Maintenance Area had several associated buildings and features including an emergency generator, and a missile assembly/test building. No significant contamination was identified at EANS01-J during the RI.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
None
MEDIA OF CONCERN:
None
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1996

School Field IV
EANS01-K

SITE DESCRIPTION

EANS01-K (School Field IV) includes the South Ground Scar and the Boundary Clearing. School Field IV is one of the nine training areas established in the Lauderick Creek Area by the U.S. Army Chemical School. UXO, including a liquid-filled Livens projectile, has been recovered from School Field IV during recent years. The South Ground Scar is an area apparently cleared, grubbed, and graded to facilitate flow away from the Launch Area. The Boundary Clearing is an approximate 1,000 x 800 ft area adjacent to the APG boundary and north of the Barracks Area which appears to have been the site of a variety of localized activities, including mortar firing and training during the Korean conflict. Contaminated surface debris, including pieces of 55-gallon drums, was removed from EANS01-K in 1995.

Based on the RI, this site requires no further remedial action because it does not pose a risk.

STATUS

CONTAMINANTS:
UXO/CWM, Surface Debris
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, IRA
CURRENT IRP PHASE:
RC - 1996

D-Field Aerial Spray Grid - Cluster 4
EAOE04

SITE DESCRIPTION

: Cluster 4 (D-Field Aerial Spray Grid) is located within the Coopers Creek Investigation Area. Test sites that date back to WWI surround the Aerial Spray Grid in one of the most active test areas (D-Field) of the Other Edgewood Areas (OEAs). Trench warfare sites, disposal trenches, test bunkers, and an impact area all share part of the Cluster 4 designated area. Site and aerial magnetometer survey anomalies (disposal sites, etc.) attest to the extent of test activities. The ASG site was primarily established to test aircraft-mounted aerial spray tanks for dispersion of chemical agents and probably agent simulants. Because of the nature and extent of test activities, all media have been extensively sampled. Metals have been detected in soil (e.g., lead at 209 ppm and zinc at 2,060 ppm) and sediment (e.g., barium at 196 ppm and zinc at 13,600 ppm) above ecological risk screening criteria. RDX and low level VOCs have been detected in groundwater samples. The site is part of the Coopers Creek Investigation Area, although some drainage goes into Bush River to the east and Target Track Creek to the south.

STATUS

CONTAMINANTS: Metals, Explosives Related Compounds, Pesticides, CWM, Mustard Deg. Product, UXO
MEDIA OF CONCERN: Groundwater, Soil, Sediment, Surface Water
RRSE RATING: Medium
COMPLETED IRP PHASE:
PA/SI, IRA
CURRENT IRP PHASE:
IRA (funded)
FUTURE IRP PHASE:
RI/FS, RD, RA

A shoreline disposal site was located north of Sandy Point area. An emergency removal action was completed at the site. Over 200 rounds were recovered at the site. Shoreline stabilization of the D-Field Shoreline was initiated FY04 to address the potential of wastes currently eroding into the Bush River; range access issues are hindering the progress of construction. Efforts are being made to share the area with the affected range programs. Groundwater monitoring wells are being installed for determination of RDX and hydraulic flow.

PROPOSED PLAN

Source and waste removal is anticipated at inland disposal sites. Dependent upon size, some inland disposal sites may involve capping due to the cost benefits.

G-Field Wastewater Treatment Area - Cluster 8
EAOE08

SITE DESCRIPTION

Cluster 8 (G-Field Wastewater Treatment Area) is located within the Wright Creek Investigation Area. The G-Field wastewater treatment system for the Weapons Assembly Plant and support buildings consists of a 750-gallon capacity septic tank system. The system received support building shower, sink, toilet and floor drain wastewaters. Floor drain waters from the assembly plant were not disposed of via the septic system. Munitions impact activities have occurred in Cluster 8. Bunkers (concrete, earthen, and composite), a bomb dumpsite, and drum storage/disposal facilities (over 90 drums) were also found in Cluster 8. Munitions disposal occurred in the northern portion of the Cluster. Troop training has also occurred north and west of the plant. Strategic Plan media (surface water, sediment, and surface soil) and groundwater sampling has been completed in Cluster 8.

STATUS

CONTAMINANTS:
Metals, SVOCs, UXO, Mustard
MEDIA OF CONCERN:
Surface Water, Sediment, Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, IRA
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Groundwater and media sampling were completed in FY04. The draft RI report will be completed FY05. RA may include waste removal, soil removal and abandonment of the bunkers and bomb dump site. The possibility exists that UXO in the area may contain CWM. During clearance activities for previous field sampling, a high confidence mustard-filled Livens projector round was discovered recently. It is anticipated that there may be risk associated with the metals concentration I the soils and sediments.

H-Field Washrack and Storage Area - Cluster 12
EAOE12

SITE DESCRIPTION

Cluster 12 (H-Field Washrack and Storage Area) is located within the Western Shore Investigation Area. Vehicle testing in the H-Field area is primarily conducted using tanks. A serpentine and linear-paved roadway course are traversed by tanks both in a firing and non-firing mode. The track extends from the support buildings (office, maintenance, storage, and data collection) in an east-northeast direction across former artillery impact areas. On the south side of the track area, sets of concrete targets extend parallel or sub parallel to the tank courses for over 3,000 feet. In the support area, vehicles are maintained, configured, and cleaned. The wash rack, vehicle yard, and fuel/oil storage facility serve the test vehicles. Numerous sediment retention ponds and low-profile mounds exist to the south and west of the area, some with associated magnetic anomalies and some with associated exposed potentially contaminated material. Strategic Plan media (surface water, sediment, and surface soil) and groundwater sampling has been completed. Additional groundwater sampling does not exceed RCRA characteristics and there is no free product of the BTEX. Soil samples for TPH do not exceed the state criteria. RI is scheduled for FY2005.

STATUS

CONTAMINANTS:
VOCs, CWM, UXO
MEDIA OF CONCERN:
Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O)

PROPOSED PLAN

Aerial and land-based geophysical surveys will be conducted over the mound areas to determine if the mounds are a series of disposal sites (funded FY04). Pending the results of the geophysical surveys, test digs and additional soil sampling will be collected where appropriate. Hot spot removal is the expected RA to address the mounds and associated wastes.

M-Field Minefield/ Prototype Building Storage Area - Cluster 16 EAOE16

SITE DESCRIPTION

Cluster 16 (M-Field Mine Field/Prototype Building Storage Area) is located within the Swaderick-Watson Creek Investigation Area. The WWII Prototype Building in M-Field has been used as a bomb target in training exercises and as a temporary storage facility. A trench extends along and beyond the south side of the building; at the end of the trench several disposal pits containing incendiary device fuses are present. A tunnel complex also exists northwest of the Prototype Building. The M-Field Minefield is located south of the trench. The minefield was a test area where mines were buried and later excavated. It is unknown when the minefield was active, and it is not certain that all of the mines or mine remnants were removed from the area. Push-outs and burn trenches south of the minefield possibly contain test waste materials from M-Field and materials from testing in adjacent fields.

STATUS

CONTAMINANTS: VOCs, UXO, Explosive Related Compounds, Metals

MEDIA OF CONCERN: Sediment, Surface Water, Soil, Groundwater

RRSE RATING:
Medium

COMPLETED IRP PHASE:
PA/SI, IRA

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O)

Limited sampling of the area during a 1994 removal action did not reveal evidence of burning, however it is not certain that the visibly scarred area was sampled. During sampling efforts in 2000, concentrations of magnetic debris were detected using a magnetometer in multiple locations.

Strategic Plan media (surface water, sediment, and surface soil) and groundwater sampling has been completed . Additional DPT groundwater sampling was completed down gradient of prototype building to delineate RDX and VOC concentrations; results are pending.

PROPOSED PLAN

Additional media (surface soil, surface water, and sediment sampling) will be completed within the Cluster 16 area. Additional groundwater sampling will be conducted to delineate VOC and RDX contamination in the vicinity of the prototype building, burn trench, and tunnel complexes based on results. Additional media sampling has been completed and results are pending. RA for the Cluster 16 groundwater may involve soil vapor extraction or other source removal and Monitored Natural Attenuation sampling. Subsurface soil samples and test digs will be conducted in the trench. RA may involve soil remediation of the trench.

Fort Hoyle Training Area - Cluster 19
EAOE19

SITE DESCRIPTION

Cluster 19 (Fort Hoyle Training Area) is located within the Gun Club Creek Investigation Area. The Fort Hoyle Training Area is located south of the existing Edgewood Area barracks. Although little is known about the training conducted in this area (WWI to WWII), it is known that training included the use of chemical warfare materiel. Chemical odors observed during the construction of the Wheeled Vehicle Facility (1980s) in the Fort Hoyle Area prompted sampling and analysis of the site. Other potential sources of contamination in the area are the Douglas Road Munitions Disposal Site and nine Drum and Junk dump sites.

Surface water, sediment, surface and subsurface soil, bioassay, and DPT groundwater sampling efforts have been conducted in support of the RI. Metals, PAHs, and pesticides have been detected in soil in Cluster 19 above ecological risk levels. Thiodiglycol was detected at 9,370 ppb. Sustained lead concentrations in surface water ranging up to 63 ppb above ecological risk levels have been detected. Geophysical x-ray fluorescence, and soil gas surveys have defined the extent of waste disposal areas. In FY04 further characterization and excavation was performed at the nine Drum and Junk sites and thiodiglycol site.

DPT sampling further indicates the presence of solvents (TVOCs ranging up to 46,161 g/L) in the groundwater north of the Wheeled Vehicle Facility. Additional groundwater characterization was conducted in 2002 including the installation of prepack wells to determine the extent of the VOC plume distribution, groundwater flow directions, hydraulic gradients, and groundwater quality for a natural attenuation evaluation. Additional monitoring wells were installed within the VOC plume to supplement the data for the Gun Club Creek Risk Assessment. All wells within Cluster 19 were evaluated for Natural Attenuation parameters. Subsurface soil samples collected from the vadose zone contained VOCs exceeding criteria.

STATUS

CONTAMINANTS:
VOCs, Metals
MEDIA OF CONCERN: Goundwater, Soil, Surface Water, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, IRA
CURRENT IRP PHASE:
RI/FS, RD
FUTURE IRP PHASE:
RA, RA(O)

PROPOSED PLAN

Draft RI report scheduled for FY05. RA for the VOC plume North of the Wheeled Vehicle Facility may include In-Situ Soil Vapor Extraction coupled with monitored natural attenuation.

L-Field Demolition and Propellant Disposal Site - Cluster 22 EAOE22

SITE DESCRIPTION

Cluster 22 (L-Field Demolition and Propellant Disposal Site) is located within the Coopers Creek Investigation Area. The L-Field Demolition and Propellant Disposal Site is at the end of and adjacent to the road extending southeastward beyond the target area of the Ballistic Track. Aerial photographs from the 1960s and 1970s indicate that the area was first cleared and used during the 1960s. Portions of the area are still bare of vegetation and the surface soils contain few fragments of munitions by visual inspection. It is possible that some of the waste material at the site is from the dumping of waste materials from operations at the test track.

Geophysical surveys (EM/MAG) were conducted in five suspect disposal areas. Surface water, sediment, surface soil, and DPT groundwater sampling has been conducted in the area in support of the RI. Low-level VOCs were detected in the groundwater at four locations.

STATUS

CONTAMINANTS: Metals, Explosive Related Compounds, UXO, Perchlorates, VOCs, Pesticides

MEDIA OF CONCERN: Groundwater, Sediment, Surface Water, Soil

RRSE RATING: Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, RD, RA

PROPOSED PLAN

Test digs followed by surface and subsurface soil sampling will be conducted in suspect disposal sites. Additional groundwater sampling is needed to delineate potential VOC contamination. Additional media sampling may be required to further assess sites within Cluster 22. IRA and RA may include waste removal at disposal locations, hot spot removal, and monitored natural attenuation.

I-Field Japanese Bunker Area - Cluster 23
EAOE23

SITE DESCRIPTION

Cluster 23 (I-Field Japanese Bunker Area) is located within the Boone Creek Investigation Area located in the southern portion of I-Field. The bunkers are steel-reinforced concrete with walls approximately 4-feet thick. The bunkers have been subjected to static and drop device blasts sufficient to rupture and penetrate the concrete walls and roofs. Although the bunkers contain test-related materials (equipment, munitions, and test equipment), there is no indication that chemical agents were used in the tests. South of the bunkers, at the edge of the wetland, is the munitions disposal site (25 foot diameter crater with shallow flooding). Near the disposal site crater are several other similar land-based, water-filled craters that may contain disposed material. Chemical materiel burn pans are located between two of the bunkers. The pans were used in a MDE approved detonation to destroy laboratory unknowns. Strategic Plan media (surface water, sediment, and surface soil) and groundwater sampling has been completed. Additional media sampling has been collected from the interior of the bunkers.

An IRA was initiated in FY04 to remove the contents of Bunkers A and F and will be competed in early FY05.

STATUS

CONTAMINANTS: Gross Alpha, Gross Beta, Metals, UXO, Explosives

MEDIA OF CONCERN:
Soil, Sediment, Surface Water

RRSE RATING:
Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, RD, RA

PROPOSED PLAN

Additional media sampling is currently underway. RA is anticipated to involve waste removal from the disposal crater and surrounding marsh area.

M-Field Southeast Test and Burn Area - Cluster 24
EAOE24

SITE DESCRIPTION

Cluster 24 (M-Field Southeast Test and Burn Area) is located within the Swaderick-Watson Creek Investigation Area. The southern portion of M-Field and the adjacent fields have been used for a variety of testing activities. A minefield, frame-silhouette targets, and both a bombproof trench and a burn trench are located in the southern portion of M-Field. Firing of rockets at targets in this area is from as far away as G-Field. Although most of the debris burned in the trenches is believed to have originated from M-Field activities, materials may have originated from surrounding area tests. From evidence around the trench, material disposed in the trench may include rocket motors. The trench is currently 2 x 3 x 30-feet-long. The trench has not been used since the early 1980s. In the past, the residue remaining in the trench bottoms after burning(s) was removed and recycled or disposed of in an appropriate manner.

STATUS

CONTAMINANTS:
Metals, UXO, Explosive Related Compounds, Pesticides

MEDIA OF CONCERN:
Soil, Sediment, Surface Water

RRSE RATING: Medium

COMPLETED IRP PHASE:
PA/SI, IRA

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS

PROPOSED PLAN

Surface soil samples will be collected to further characterize trench and burn area. Surface water and sediment samples will be collected down gradient of the site to determine any impacts on the Watson Creek marsh. No RA is anticipated at this time.

M-Field Tunnels and Test Slab Areas - Cluster 26
EAOE26

SITE DESCRIPTION

The M-Field Concrete Slab was constructed in 1942 and measures 300 ft in length and width. A vertical concrete target wall (structure E7244) was constructed after the original slab. The height of the original vertical target wall was 25 ft and extended 75 ft across the southern side of the slab. In 1949, an additional 15 ft was constructed on the original wall to make the height 40 ft. Throughout the World War Two and continuing into present day, APG has used the slab as a test site. Most of the testing has been with chemical ordnance, primarily incendiary, smoke, and simulant-filled items. Testing operations resulted in solid waste disposal along the perimeter of the slab, primarily the south and southeast sides. The majority of the solid waste is comprised of the remains of incendiary munitions (e.g., 6 and 10 pound illumination and incendiary rounds) and miscellaneous waste (e.g., metal scrap, empty drums, pipes).

STATUS

CONTAMINANTS: Metals, VOCs, Explosive Related Compounds

MEDIA OF CONCERN:
Groundwater, Soil

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, IRA, RD, RA, RA(O), LTM

Tunnel complexes designed for the testing of materials to deny enemy troop entry into tunnels was conducted at three tunnel complexes in M-Field. The northern most and largest complex consisted of four parallel zigzag tunnels. Two parallel zigzag tunnels were located near the M-Field bunker, and another tunnel complex was located northwest of the prototype building. Most of the tunnels were either buried or have collapsed. Soil gas sampling has been conducted at the tunnel complexes. This site also includes a 1930 chemical lab and other buildings.

CWM may be present at the site.

PROPOSED PLAN

Conduct additional soil, surface water, sediment, and DPT groundwater samples. Groundwater samples will be collected to delineate the extent of metal, RDX, and VOC contamination. Waste and associated soil removal may be needed along the perimeter of the test slab. Soil remediation and monitored natural attenuation may be needed at the Tunnel Complexes.

M-Field Pre-WWII Agent Test Site - Cluster 27
EAOE27

SITE DESCRIPTION

Cluster 27 (M-Field Pre-WII Agent Test Site) is located within the Swaderick-Watson Creek Investigation Area. As early as the 1920s, field-testing of lethal chemical agents was conducted at the Edgewood Area of APG. These tests were conducted primarily in five test areas of M-Field. The test sites were located southeast of the M-Field bunker where the open grassland terrain slopes gradually to the south and southeast to a fringe wetland of Watson Creek. Containers of agent were explosively burst during static tests.

STATUS

CONTAMINANTS:
Solvents, UXO, Metals
MEDIA OF CONCERN: Groundwater, Soil, Surface Water, Sediment
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA, RA(O)

PROPOSED PLAN

Additional surface water, sediment, surface soil, and groundwater sampling will be conducted to further assess test and disposal sites. RA may include hot spot removal to address the test and potential disposal areas.

H-Field Concrete Target Area - Cluster 28
EAOE28

SITE DESCRIPTION

Cluster 28 (H-Field Concrete Target Area) is located within the Boone Creek Investigation Area. The H-Field Target Area and surrounding areas of Cluster 28 have been used for a variety of testing activities including chemical agent firing. The Pre-WWII Artillery Target Area II is also located in H-Field. Simulated tank turrets, a tank, several large craters, burn scars, bombed/blasted out concrete buildings, a large aboveground tank, munitions disposal site, and approximately 10 drums are present in the area. Steel-reinforced concrete target slabs (two sets of two parallel lines of walls, up to 3,000 feet in length) served as targets or target backstops. At the eastern end of the cluster is a disposal area with munitions fragments, empty containers (such as hydraulic fluid cans), and miscellaneous potentially contaminated test material. At the western end of the parallel concrete targets, a large pile of sand and gravel exists between the two slabs. Examination of this sand and gravel pile revealed fragments of rocket motors, smokeless powder grains, and fragments of rocket propellant, indicating that the pile was probably also used as a target. No contamination above criteria was detected from the soil samples from the sand and gravel pile and munitions disposal sites. Strategic Plan media (surface water, sediment, and surface soil) and groundwater sampling has been completed. Strategic Plan DPT groundwater sampling similarly did not indicate contamination.

STATUS

CONTAMINANTS: Explosives, Metals, CWM, SVOCs, UXO

MEDIA OF CONCERN: Groundwater, Soil, Surface Water, Sediment

RRSE RATING:
Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, RD, RA

PROPOSED PLAN

Additional groundwater and media sampling is currently underway to determine the impact from past testing and disposal activities. A comprehensive site reconnaissance and limited geophysical surveys will be performed to confirm suspect disposal areas (funded FY04). RA is anticipated to include waste and soil removal at the munitions disposal site with limited monitoring.

Maxwell Point Test Site - Cluster 29
EAOE29

SITE DESCRIPTION

Maxwell Point has maintained its physical integrity due to the massive extent of steel-reinforced concrete, I-beams, spent metal pressure tanks, piping, railroad rails, and associated construction debris that acts as riprap onsite. Testing on the point has included smoke generator testing, munitions firing to the Graces Quarters impact area, drop/slide testing of cargo containers, grenade testing (drop tower with a large water pit), and a variety of testing that required bomb proofs. Additional structures onsite have included a munitions disposal site, a steel-fenced munitions storage area, fuel storage tanks, and a septic system. Other foundations and materials are also found throughout the wooded areas of Maxwell Point.

Offshore geophysical surveys were performed on the north and south shore zones of Maxwell Point to identify any large-scale disposal sites. No large areas of potential disposal were identified. Additional land based geophysical surveys were conducted in April 2001 over suspect cleared areas and to locate a suspect UST associated with the former E7341 Test Tower.

STATUS

CONTAMINANTS:
Metals, VOCs, CWM, UXO
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, IRA, RD, RA, RA(O)

Surface water, sediment, and soil sampling has been conducted in Cluster 29 in support of the RI. Metals concentrations (e.g., copper at 397 ppm, lead at 128 ppm, and zinc at 33,800 ppm) detected in soils are above ecological risk levels.

The surfical aquifer groundwater at the Building E7365/7368 Test Site on the western end of Maxwell Point; total VOCs concentrations range up to 4,182 mg/L. In 2002, additional DPT groundwater sampling and rotosonic borings were completed to determine the vertical and lateral extent of VOC contamination. Based on the heterogeneity of the surficial aquifer, spatial relationship of the VOC detections, and individual compounds indicate there are at least four separate VOC source areas affecting the aquifer.

Soil hot spot and waste removal will be conducted as an IRA to address metals contamination in the vicinity of the smoke generator debris (funded FY04).

DPT groundwater sampling was conducted at the two remaining sites (Building E7340/E7350 Test Site and Building E7332 Test Site) where no groundwater samples have been collected to date.

PROPOSED PLAN

Offshore groundwater sampling and pore water samples may be conducted to determine if VOC contamination at the western end of Maxwell Point is discharging into the Gunpowder River and posing an ecological risk. Source remediation and monitored natural attenuation may be required to address the VOC groundwater contamination.

C-Field Munitions Burial Site - Cluster 30
EAOE 30

SITE DESCRIPTION

Cluster 30 (C-Field Munitions Burial Site) is located within the Doves Cove Investigation Area. The Building E1412 Munitions Burial Site is located within the northwestern portion of C-Field, east of Ricketts Point Road. As early as World War I, the C-Field area has been used extensively for both testing and training activities, including use as an impact area. During recent decades, a firing point in eastern C-Field has also been used for munitions testing and for rocket firing into L-Field and D-Field. During construction of Bldg E1412, buried rockets were discovered at the site. However, the specific location of this site has not been identified at this time.

Bldgs E1407 and E1415 exist within the northwestern portion of C-Field, east of the juncture of Gantz and Ricketts Point Rds. Built during WWI, these buildings were used for storage and maintenance in support of miscellaneous C-Field test activities, including rocket firing, munitions testing, and tests conducted at the Vibratory Test Facility. Bldg E1407 was also originally used as an ammunition assembly plant. The wastewater treatment system for Bldgs E1407 and E1415 is comprised of a 1,000-gallon septic tank with an associated leachate/drain field. The septic tank is located ~350 ft north-northwest of Bldg E1407 and the leachate/drain field is immediately north-northwest of the septic tank. Small quantities of hydraulic fluid, scrap metals and equipment cleaning solvents in support of testing operations would also have been handled at this site.

In 1995, a removal action was completed at the Bldgs E1407/E1415 septic tank by removing impacted soil from the vicinity of the tank and the septic tank's contents. A 5 x 5-ft area was excavated to a depth of 4-ft.

Strategic Plan media (surface water, sediment, and surface soil) and groundwater sampling has been completed. The explosive related compound RDX and 1,1-Dichloroethene were detected during the Phase I Strategic Plan DPT groundwater sampling. Detections of both compounds were repeated during Phase II sampling.

Further groundwater sampling has shown that there is not significant risk posed from groundwater contamination.

STATUS

CONTAMINANTS: Metals, Explosive Related Compounds, VOCs

MEDIA OF CONCERN:
Soil, Groundwater

RRSE RATING:
Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, LTM

PROPOSED PLAN

Additional groundwater and media sampling completed FY04. Based on results, 2 wells have been installed and are being sampled four times (funded FY04). Received concurrence from USEPA and MDE; draft RI report to be completed FY05.

H-Field Tank Test Range - Cluster 31
EAOE31

SITE DESCRIPTION

The Tank Test Range in H-Field extends from a support building area eastward across the Gunpowder Neck, ending at a triangular moving target track in southern D-Field. Cluster 31 consists of the southwestern two-thirds of the track. The tank track consists of straight roadways and a serpentine test track. Testing involves firing while maneuvering along the track and over "alternating track speed bumps". The test range includes firing points, a vehicle track, a track-mounted moving target, and buildings that support (vehicle maintenance, development, and lubrication) the test operations. The track also traverses two areas previously used as artillery impact areas. Support buildings (Cluster 12) have storerooms for petroleum lubricants, offices, and restroom facilities. During the 1920s and 1930s, open air and static air testing of chemical agents and ordnance was conducted in H-Field. The Pre-WWII Artillery Target Area III is also located in Cluster 31 H-Field was used as a range for mustard-, phosgene-, and other agent-filled munitions.

Sampling was conducted in fall 2001. Results indicate no further groundwater investigation is needed. Additional sampling (surface water, sediment, surface soil) results are pending.

STATUS

CONTAMINANTS:
Metals, CWM

MEDIA OF CONCERN:
Soil, Surface Water, Sediment

RRSE RATING:
Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS

PROPOSED PLAN

Additional sampling is planned. No remedial action is expected.

D-Field Chemical Agent Test Grid - Cluster 37
EAOE37

SITE DESCRIPTION

A prominent tower still stands at the northern edge of the Chemical Agent Test Grid Area. Testing in the area involved the firing of munitions from the tower into two circular test grids with monitoring equipment or staked animals. Chemical agents and chemical agent munitions were tested in the grid areas; some of the tests could have involved static testing. Often the tests used highly volatile G-agents (i.e., GA, GB, and GD). Mounds and abandoned rusted drums in a drainage swale are present down gradient (to the west). Further down gradient, drums of decontamination materials were unearthed during a roadway extension into H-Field. The southern part of the test area has been burned due to a range fire. Metals (e.g., copper at 69.9 ppm) have been detected in soils above ecological risk levels.

Thiodiglycol was detected in two surface water and sediment samples ranging up to 61,300 ppb. Additional samples were collected in a grid around the two original locations and analyzed for thiodiglycol and organosulfar compounds. Additional samples did not detect thiodiglycol.

STATUS

CONTAMINANTS: UXO, Agent Degradation Products, Explosive Related Compounds

MEDIA OF CONCERN: Groundwater, Sediment, Surface Water

RRSE RATING: Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, RD, RA

PROPOSED PLAN

Test digs will be conducted to further characterize any potential waste at the thiodiglycol area. DPT groundwater samples will be collected in the vicinity of the thiodiglycol detections. RA may include the removal of potentially contaminated material through out the Cluster 37 area.

K-Field Demolition Field - Cluster 38
EAOE38

SITE DESCRIPTION

The K-Field Demolition Ground is located between Wright Creek to the south and Gun Club Creek to the north. The creeks and associated wetlands, along with a range fence, surround the site. The site is accessible only via a dirt road placed across a broad wetland to the west of the site. The area was used for demolition of small munitions (limited proximity of cantonment area) and for training activities of the 149th Ordnance Detachment. Demolition activities were curtailed in the late 1970s or early 1980s. Spent/practice munitions are found scattered in the southeast edge of the area and small explosion craters are located in the southern portion of the clearing. Surrounding the small craters, bare soil (ground scar) is prevalent with only sparse vegetation. Spent rifle cartridges are scattered in the soil around the pits. Large trenches (containing water) are found in the woods to the east of the clearing. One large pond is located about 100 yards south of the clearing. Training materials and junk automobiles are located in the adjacent woods. Sediment, surface water, soil, and groundwater samples have all been recently collected from Cluster 38. Groundwater contamination at 3 feet below the ground surface indicates VOCs. Additional DPT sampling is currently being conducted in area to determine if a source is present.

Groundwater sampling for Natural Attenuation parameters was conducted.

STATUS

CONTAMINANTS:
Metals, VOCs
MEDIA OF CONCERN:
Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS

PROPOSED PLAN

Characterization of demolition craters and perimeter of site completed in FY04. Draft RI Report is due April 2005. No RA is anticipated at this time.

C-Field Wastewater System - Cluster 39
EAOE39

SITE DESCRIPTION

The Cluster 39 (C-Field Wastewater System) is located within the Doves Cove Investigation Area. C-Field is an open grassland area adjacent to Range Control in the northern portion of the OEA range. Buildings E1400 and E1401 lie within the northwestern portion of C-Field, east of Ricketts Point Road and slightly northwest of Wilson Point Cove. The two buildings were constructed during World War I for use as maintenance facilities. As the largest structure in C-Field, Building E1401 has been used for storage in recent years. The wastewater treatment system for Buildings E1400 and E1401 consists of a 500-gallon septic tank and two leachate/drain fields. The septic tank is located about 100 feet northwest of the northern corner of Building E1401. The 2 leachate/drain fields are located immediately northwest and north-northeast of the septic tank. In addition, a UST was discovered west of Building E1401, which will not be handled under the IRP. Small quantities of hydraulic fluid and equipment cleaning solvents in support of testing operations would also have been handled at this site.

STATUS

CONTAMINANTS:
Metals, PAHs
MEDIA OF CONCERN:
Surface Water, Sediment
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS

In 1995, a removal action was completed at the Buildings E1400/E1401 septic tank by removing impacted soil from the vicinity of the tank and the septic tank's contents. Two 5-foot by 5-foot areas were excavated to a depth of 2-feet.

Strategic Plan media (surface water, sediment, and surface soil) and groundwater sampling has been completed.

PROPOSED PLAN

Additional groundwater and media sampling completed FY04. Received concurrence from USEPA and MDE; draft RI report to be completed FY05.

G-Field Tunnel Complex - Cluster 41
EAOE41

SITE DESCRIPTION

Cluster 41 (G-Field Tunnel Complex) is located within the Swaderick-Watson Creek Investigation Area. The G-Field Tunnel Complex consists of three zigzag tunnels in a general east-west configuration. The tunnels are approximately 100 yards northwest of the intersection of Ricketts Point and Maxwell Point Roads. The location of the tunnels is presently marked by shallow depressions that retain water after heavy precipitation events. The model tunnels (similar to enemy tunnels) were used to test agents and chemicals to deny enemy troop entry into tunnels. The tunnels were probably 5-feet-high by 3-feet-wide. The G-Field tunnels, like others in M-Field, were constructed with combinations of wood, sheet metal, and concrete. Lineaments observed in aerial photographs indicate the possibility of additional trenches or tunnels north of the tunnel complex.

Strategic Plan media (surface water, sediment, and surface soil) and groundwater sampling has been completed. DPT groundwater samples contained the VOCs cis-1,2-DCE at 92 ppb, TCE at 63 ppb, 1,1-DCE at 8 ppb, and vinyl chloride at low levels. Additional groundwater sampling in the area did not confirm the presence of VOCs.

STATUS

CONTAMINANTS:
Agent Deg. Products, VOCs, SVOCs

MEDIA OF CONCERN: Surface Water, Sediment, Groundwater

RRSE RATING:
Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS

PROPOSED PLAN

Additional media sampling will be required within the tunnel complexes and adjacent wetland. No RA is anticipated at this time.

M-Field Clothing Shack Area - Cluster 42
EAOE42

SITE DESCRIPTION

Cluster 42 (M-Field Clothing Shack Area) is located within the Swaderick-Watson Creek Investigation Area. A group of several small buildings and fuel-type tanks at the intersection of Maxwell Point and Watson Creek Roads comprise the Clothing Shack Area. These small buildings were constructed during the 1940s; it is believed that they were used primarily for storage and as a clothing change house. One (or two) additional building (since removed) existed across Maxwell Point Road during the time of training activities. The buildings were used for support and storage of materials related to clothing contamination and decontamination training exercises. North of the building area (about 75 yards) several mounds (6 to 8 feet high) of push out material exist at the edge of a Swaderick Creek wetland. The mounds may contain materials disposed as a result of training exercises. A disposal site of white phosphorus bursting grenades exists in this area. A geophysical survey was conducted over the area to determine the size and extent of the grenades and soil from area was sampled.

STATUS

CONTAMINANTS:
VOCs, UXO
MEDIA OF CONCERN: Surface Water, Sediment, Soil, Groundwater
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, IRA, RD, RA

PROPOSED PLAN

Additional media and groundwater sampling have been conducted to further characterize potential source areas within Cluster 42 (funded FY04). Removal of waste and soil may be required in push out and waste areas (i.e. bursting grenade area).

M-Field Grenade Range - Cluster 43
EAOE43

SITE DESCRIPTION

The M-Field Grenade Range is located just southwest of the intersection of Maxwell Point and Watson Creek Roads. The firing point for this range was near the twin towers south of Maxwell Point Road and west of Watson Creek Road. Grenades and other munitions were fired from the firing point near the Twin Towers (Cluster 44) in an east-southeasterly direction. The tested materials would impact targets and/or the 12-ft-high earthen backstop located onsite. The mound is located less than 75 yards from Watson Creek Road. The firing line and mound are located adjacent to a wetland area that drains via a small creek (locally identified as Twin Tower or Lumber Yard Creek) into the Gunpowder River. The range was approximately 975 ft in length and was actively used until the early 1970s for the testing of 40mm CS and smoke grenades and possibly other munitions.

Media (surface water, sediment and surface soil) sampling completed; results pending.

STATUS

CONTAMINANTS: UXO, Metals, Explosive Related Compounds, Chemical Agent Degradation Products

MEDIA OF CONCERN: Groundwater, Surface Water, Sediment, Soil

RRSE RATING: Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS

PROPOSED PLAN

Further sampling may be required based on the Stategic Plan sampling results. No RA is anticipated.

M-Field Bomblet Projector - Cluster 44
EAOE44

SITE DESCRIPTION

Cluster 44 (M-Field Bomblet Projector) is located within the Swaderick-Watson Creek Investigation Area. The M-Field Bomblet Projector (Twin Towers) was located southwest of the intersection with Maxwell Point and Watson Creek Roads. The projector tower complex was built in the 1957-58 timeframe. The towers were to be used as a launching platform for bomblets fired down a cable. The cable was stretched from the towers to a concrete-based metal anchor point north of Maxwell Point Road. The cable was tightened with a hand winch 30 feet from the anchor point. Modified drop tests were to be performed by sliding bomblets and/or propelling rockets down the cable; however, it is possible that the facility was never used as intended. Cable fragments are located near the anchor point, but evidence of actual bomblet/rocket tests is not obvious. Currently, meteorological and radio antennas have been placed on the towers. Possible disposal mounds are located northwest and northeast of the towers.

STATUS

CONTAMINANTS:
Explosives, Metals
MEDIA OF CONCERN:
Soil, Sediment, Surface Water
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS

PROPOSED PLAN

Additional media and groundwater sampling will be conducted to further characterize potential source areas within Cluster 44. No RA is anticipated at this time.

E-Field Legos Point Impact Area - Cluster 45
EAOE45

SITE DESCRIPTION

The Legos Point Impact Area is located in southeastern E-Field. Legos Point marks the juncture of the Bush River (mouth) and the Chesapeake Bay. The Legos Point Impact Area was identified using aerial photographs taken in 1929 and 1941. The impact area was approximately 850 x 400 ft wide. The area may have served other test purposes associated with nearby test activities (small buildings adjacent to wetlands near Cluster 46, west of the Impact Area). DPT ground water samples contained moderate levels of metals and SVOCs.

Benzothiazole was detected at 0.9ppb. Media (surface water, sediment and surface soil) sampling was completed in the area.

STATUS

CONTAMINANTS: Metals, Explosive Compounds, Chemical Agent Degradation Products

MEDIA OF CONCERN: Groundwater, Soil, Sediment, Surface Water

RRSE RATING: Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS

PROPOSED PLAN

Perform additional surface water, sediment, soil, DPT and groundwater sampling. No RA is expected.

E-Field Dredge Spoil Area - Cluster 46
EAOE46

SITE DESCRIPTION

The Dredge Spoil Area, approximately 7 acres in area, is located adjacent to the Legos Point Impact Area and may contain munition fragments/material from rounds falling outside the Legos target area bulls eye. Items associated with the Impact Area would be buried in the subsurface dredging activities between 1957-1960. It is known that the channel in the Bush River to the Boones Creek landing was dredged at least once during the period since WWII, and it is presumed that this adjacent area was the source of dredge spoil. The spoil area is west-southwest of the impact area and east-southeast of an area of possible testing activities as observed on aerial photographs (construction debris and/or test debris in push out areas). DPT groundwater samples contained low levels of metals and chloroform.

STATUS

CONTAMINANTS: Metals, Explosive Related Compounds, VOCs

MEDIA OF CONCERN: Groundwater, Sediment, Surface Water, Soil

RRSE RATING:
Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS

PROPOSED PLAN

Perform additional surface water, sediment, soil, and groundwater sampling. No RA is expected.

L-Field Old Bush River Dock - Cluster 49
EAOE49

SITE DESCRIPTION

Pilings are all that remain of the L-Field Old Bush River Dock structure located on the Bush River shoreline, approximately 600 ft north of the mouth of Coopers Creek. The pilings are only visible during periods of low tide. The dock was in use prior to WWII and may have existed prior to the Gunpowder Neck becoming government property. The area was an impact zone as indicated by debris found in the wooded area near the dock. Material may have been fired into the area from various locations.

STATUS

CONTAMINANTS: Metals, Chemical Agent Degradation Products, Solvents

MEDIA OF CONCERN:
Surface Water, Sediment, Soil

RRSE RATING:
Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS

PROPOSED PLAN

Perform surface water, sediment, groundwater and DPT sampling. No RA is expected.

G-Field Training Area - Cluster 50
EAOE50

SITE DESCRIPTION

Cluster 50 (G-Field Training Area) is located within the Swaderick-Watson Creek Investigation Area. The G-Field Training Area was an impact area for a large portion of the OEAs history. Materials fired into the area would have originated from training activities conducted in the Fort Hoyle Area just south of the cantonment area. During the early history of the Edgewood Area, this area was under the control of Fort Hoyle. Munitions fired into the area would have been primarily HE, smoke, riot control, and incendiary-type munitions; however, it is possible that lethal agent-filled munitions would have been fired into the area during the 1920s and 1930s. A few drums and a water-filled pit were found in the area. In one area, tire stopper blocks were associated with empty drums. It appeared that the drums were of fairly recent vintage (1960s to 1980s) and contained fuel for smoke generators related to training activities.

STATUS

CONTAMINANTS:
Metals, Pesticides
MEDIA OF CONCERN:
Soil, Surface Water, Sediment
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI, IRA
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA

PROPOSED PLAN

RA will include the removal of drums and potentially contaminated material.

K-Field Pistol Range - Cluster 51
EAOE51

SITE DESCRIPTION

Cluster 51 (K-Field Pistol Range) is located within the Wright Creek Investigation Area. The K-Field Pistol Range lies along the Gunpowder River shoreline and Hoadley Road, south of Wright Creek and adjacent to the intersection of Hoadley and Gansz Roads. The range was established during World War II for training and recreational purposes, and was probably used until the 1960s or early 1970s. The firing at the range was toward the Gunpowder River, with the designated danger zone extending more than a mile into the river. Operations at the K-Field Pistol Range would have generated no wastes other than general refuse by the persons using the range. Expended rounds would have impacted in the Gunpowder River and in the soil in the range. Small quantities of gun cleaning materials with solvents would have been handled at the site.

Strategic Plan media (surface water, sediment, and surface soil) and groundwater sampling has been completed. The solvent PCE was detected at a concentration of 3 ppb and the chemical agent degradation product MPA was detected at 24,000 ppb at the south end of the site during Phase I DPT groundwater sampling activities. The PCE detections were repeated during Phase II sampling. Additional groundwater sampling conducted Fall 2003 indicates that areas of contamination are isolated and previously detected levels are the maximum concentrations.

Surface soil samples indicated elevated metals, SVOCs, and pesticides in the northern area of Cluster 51.

STATUS

CONTAMINANTS:
Metals, SVOCs, Pesticides
MEDIA OF CONCERN:
Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA

PROPOSED PLAN

Additional groundwater and media sampling completed FY04. Based on results, DSHE received concurrence from USEPA and MDE on RI approach; draft RI report to be completed FY05. Limited soil removal may be necessary to address metal concentrations in soil. The moderate shoreline erosion will need to be addressed in the future.

Maxwell Point Rifle Range - Cluster 52
EAOE52

SITE DESCRIPTION

The rifle range is located adjacent to the Gunpowder River shoreline in the southwestern portion of Maxwell Point, south of Swaderick Creek. The range was established during the 1940s and was probably used for training until the late 1960s or early 1970s. The range has four parallel linear mounds located at a designated distance from the target zone. Troops stood on the mounds during rifle firing practice. The target zone consists of an earthen embankment adjacent to a taller, reinforced concrete wall backstop. On the backside of the wall (shoreline side) are the remains of a series of target frames. These frames appear to have been hinged to allow swing away for the placement of spent targets. After replacement of targets, the target frames were swung into position for the next firing. Also along the shoreline are the remains of what appears to be latrine facilities, perhaps for the crews behind the wall that were in charge of target replacement. Behind the firing range are several small buildings believed to have been storage buildings and a latrine. The latrine wastes went to either a septic tank or dry well. The designated danger zone over the river (behind the backstop) extended up to 2 miles into the Gunpowder River in a south-southwesterly direction toward Carroll Island. Contaminants associated with the range would be solvents used for weapon cleaning and lead and other metals from bullets fired into the target area embankment and concrete backstop wall.

Metal concentrations have been detected in soil above the ecological risk levels (lead 1800ppm, zinc 0.02ppm, copper 463.6ppm, arsenic 4.1ppm). A XRF survey of the firing range was conducted to delineate the extent of metals contamination in late 2001.

STATUS

CONTAMINANTS:
Metals, PAHs

MEDIA OF CONCERN:
Soil, Sediment, Surface Water

RRSE RATING:
Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, RD, RA

PROPOSED PLAN

Perform soil, sediment, surface water, and groundwater sampling. Soil and source removal may be required.

I-Field Impact Area - Cluster 53
EAOE53

SITE DESCRIPTION

Cluster 53 (I-Field Impact Area) is located within the Boone Creek Investigation Area. The I-Field Impact Area is an active area of approximately 200 acres of graded bare soil sloping southeast to the Chesapeake Bay. Range testing has been conducted since pre-WWII and may have included chemical warfare materials. Most rounds are retrieved for examination after impact. A disposal area exists near the shoreline southeast of the impact area. Historically, some onsite test materials (spent munitions, munitions fragments, and miscellaneous fluid containers) may have been placed in the disposal area. The disposal site has not been delineated, but is anticipated to be less than 10 acres. A riparian zone exists between the bare soil impact area and the Chesapeake Bay shoreline. Part of the site is being exposed by shoreline erosion.

Strategic Plan media (surface water, sediment, and surface soil) and groundwater sampling has been completed. RDX was detected in Phase I and II Strategic Plan DPT groundwater samples.

STATUS

CONTAMINANTS:
RDX, UXO
MEDIA OF CONCERN:
Groundwater
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS
FUTURE IRP PHASE:
RI/FS, RD, RA

PROPOSED PLAN

Additional DPT groundwater sampling is planned to delineate extent of RDX contamination. Geophysical surveys are planned to delineate the extent of potential disposal areas. Pending the results of the geophysical surveys, additional sampling may be required. IRA may include waste and soil removal.

I-Field Smoke Pot Burial Site - Cluster 54
EAOE54

SITE DESCRIPTION

Cluster 54 (I-Field Smoke Pot Burial Site) is located within the Boone Creek Investigation Area though the exact location is unknown. It is believed to be located between Ricketts Point Road and the shoreline of the Chesapeake Bay in the southwestern portion of I-Field. The only known information regarding the site location is from a 1946 surveyors field book that indicates the site is located in southern I-Field. Smoke pots buried at the site were from the WWII era and are expected to have contained a HC smoke mixture comprised of hexachloroethane and its degradation byproducts. Several areas of disturbed ground are suspect sites in southern I-Field. One of the suspect areas contains lead and arsenic contamination in DPT groundwater samples.

STATUS

CONTAMINANTS: Metals, Chlorinated Hydrocarbons, Explosives

MEDIA OF CONCERN: Groundwater, Soil, Surface Water, Sediment

RRSE RATING:
Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS

FUTURE IRP PHASE:
RI/FS, RD, RA

PROPOSED PLAN

Test digs will be performed to confirm location north of the Cluster 23 area. Once the location is confirmed, a removal of the waste and associated soils is anticipated.

Old O-Field Groundwater Treatment Facility - OU1
EAOF01

SITE DESCRIPTION

A plume of contaminated groundwater extending from the source area (EAOF02) to Watson Creek (EAOF03) exists in a shallow water table and a shallow confined aquifer beneath Old O-Field. The source of contamination is a ~4.5 acre area used during the 1940s and 1950s for the disposal of chemical warfare agents, munitions, contaminated equipment, and miscellaneous wastes. Groundwater contaminants include chemical warfare agent degradation products; various metals; chlorinated aliphatic hydrocarbons; aromatic and nitroaromatic compounds.

An Interim ROD to address this contamination was signed in September 1991, in which the prescribed remedy was the installation of downgradient extraction wells to contain affected groundwater and the construction of an on-site Groundwater Treatment Facility (GWTF). The treatment train in the GWTF includes chemical precipitation for metals removal and ultraviolet oxidation followed by liquid phase carbon absorption for treatment of VOCs. The treated groundwater is discharged to the Gunpowder River. An Explanation of Significant Difference (ESD) to this ROD is being staffed for signature. The ESD addresses non-pumping of the upper confined aquifer and details the modified organics treatment system; modifications to the frequency of biomonitoring, toxicity testing, and effluent sample collection; and the "batch" treatment of liquid investigation-derived material (IDM) from other areas of APG.

STATUS

CONTAMINANTS: VOCs, Chemical Warfare Agent Deg. Products, Metals, Hydrocarbons, Aromatics

MEDIA OF CONCERN: Groundwater

RRSE RATING: High

COMPLETED IRP PHASE: PA/SI, RI/FS

CURRENT IRP PHASE: RD, RA(O)

FUTURE IRP PHASE: RA, RA(O)

PROPOSED PLAN

Containment and treatment of contaminated groundwater will continue. A study to reduce operation cost is underway. Additional remedial technologies will be evaluated in FY04, prior to a Final ROD.

Shoreline stabilization for the treatment facility may be needed in the future (funding for this action has not been included the the cost shown).

Old O-Field Source Area - OU2
EAOF02

SITE DESCRIPTION

The Old O-Field Source Area is a 4.5-acre disposal site located adjacent to Watson Creek (EAOF03). The area was first used in the early 1940s for periodic disposal of waste materials from U.S. Army operations. From 1942 to 1953, unlined and uncovered pits and trenches were dug and used for the disposal of bulk chemical agents, munitions, contaminated equipment, and miscellaneous hazardous waste. Disposed materials included lethal chemical agents, incapacitating agents, smoke incendiary materials, and explosive compounds.

An Interim ROD to address the potential for an accidental release of chemicals into the air was signed in September 1994. The components of the selected remedy included the construction of a permeable sand cover over the landfill designed to mitigate potential explosions and air releases of chemical agents. Construction of the cover was completed in September 1998. Studies to integrate the sand cover (EAOF02) and the GWTF (EAOF01) into one final remedy for the site have been completed. An Explanation of Significant Difference (ESD) for EAOF02 is currently under revision. The ESD addresses non-utilization of the subsurface air monitoring system, non-utilization of the surface spinklers for a treatability study and addition of a subsurface trickling system.

STATUS

CONTAMINANTS: Chemical Agents, Munitions, Equipment, Haz Waste

MEDIA OF CONCERN:
Soil

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS (funded), RD, RA(O)

FUTURE IRP PHASE:
RA, RA(O)

PROPOSED PLAN

The selected remedial action is an interim remedy, and will allow for continued investigation into a final ROD. Until that time, the risk of a release of hazardous air pollutants has been minimized by the sand cover placed over the disposal site. Additional remedial technologies will be evaluated in FY04, prior to a Final ROD.

Watson Creek Sediment & Surface Water - OU3
EAOF03

SITE DESCRIPTION

Watson Creek is a 60-acre estuarine water body located adjacent to the Old O-Field Source Area (EAOF02). Watson Creek receives both surface water runoff and groundwater discharge from O-Field (EAOF01, EAOF02 and EAOF04) and other adjacent range areas. Watson Creek discharges into the Gunpowder River, which in turn drains into the Chesapeake Bay.

Sampling performed during the RI detected metals and 4,4-DDE in the Watson Creek sediments at concentrations that pose potential adverse effects to benthic communities. Additionally, a potential risk to human health exists from the possible presence of ordnance in Watson Creek.

A ROD for Watson Creek was signed in September 1997. Limited action was selected as the most appropriate remedy, which involves the implementation of institutional controls (access and land-use restrictions), physical security measures, public education programs, long-term monitoring of site conditions, and 5-year reviews. Five years of long-term monitoring have been completed. Monitoring activities have included sediment sampling for chemical and bioassay analysis, fish tissue bioaccumulation studies and storm monitoring. In 1999, a bathymetry study was completed.

STATUS

CONTAMINANTS:
DDE, Metals
MEDIA OF CONCERN:
Surface Water, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI, RI/FS, RA
CURRENT IRP PHASE:
RIP (1998) with LTM
FUTURE IRP PHASE:
RIP (1998) with LTM

PROPOSED PLAN

Long-term monitoring and bioaccumulation studies will continue to be performed in accordance with the September 1997 ROD for OU3. Future monitoring efforts will be determined based on the annual report recommendations and evaluation and agreements between the Army and regulatory agencies. The sampling plan for LTM in FY05+ includes one round of sediment per year for chemical analysis.

NOTE: Costs for the Edgewood Area Five-Year Reviews (In FY07, FY12, FY17, FY22, FY27 and FY32) are also included under EAOF03.

New O-Field Groundwater and Source Area - OU4 EAOF04

SITE DESCRIPTION

New O-Field is a disposal area used from 1950 to the late 1970s as a destruction, disposal and training area. Disposed materials are reported to include explosives, acids, research samples, mustard and white phosphorus-filled shells, other CWM and materials recovered during cleanup operations at Old O-Field. Burning in trenches was the primary disposal method. Nine covered former disposal/burn trenches exist at the site, two open burn trenches remain. A brush fire in April 1997 exposed previously unknown disposed materials including construction waste, UXO, burn pit push-out and potential CWM. The newly exposed materials more than doubled the size of the disposal area previously defined as New O-Field, from approximately 5 acres to upwards of 20 acres.

STATUS

CONTAMINANTS: Metals, Solvents, PAHs, Pesticides, Dioxins/Furans, Explosives, CWM, CWM Deg. Products, Wastes

MEDIA OF CONCERN: Groundwater, Soil, Surface Water, Sediment

RRSE RATING: High

COMPLETED IRP PHASE: PA/SI

CURRENT IRP PHASE:
RI/FS, IRA (funded)

FUTURE IRP PHASE:
RD, RA, RA(O)

Contaminants identified during the RI include metals, solvents, PAHs, pesticides, dioxins/furans, CWM degradation products, and explosives in the soil, surface water, sediment and groundwater. A potential for human health risk exists, due to possible UXO/CWM on the surface of the marsh and woods and buried in the trenches. To mitigate the risk in the marsh and to reduce further degradation of the site groundwater, a non-time critical removal action was initiated in 2001 within the Pushout Area of the march. The removal action is scheduled for completion in FY05 (already funded).

Supplemental sampling in 2001 through 2003 has been conducted in support of the Groundwater Natural Attenuation Assessment and Ecological Risk Assessment, which will both be completed in FY04 (already funded). Based on the results of these assessments, a revised FS, Proposed Plan and Record of Decision will be developed for New O-Field in FY05 (already funded).

According to historical records, limited disposal may have occurred in the 1940s in an area west of Watson Creek Road, referred to as Other O-Field Areas. A field investigation, including geophysical surveys, direct push groundwater sampling, and surface soil/sediment is planned in FY04 (already funded).

PROPOSED PLAN

Elevated concentrations of PAHs and metals may be removed from limited hot spot areas within New O-Field. The buried trenches, open trenches and wastes in the woods and marsh are also being considered for remediation by several methods in the FS Report. Concentrations of VOCs in groundwater at New O-Field appear to be declining with time, indicating that there is no longer an active source at the site. However, enhancement may be required to ensure that the parent compounds are broken down into innocuous byproducts (i.e. without amendments, the process may stop at vinyl chloride.

The results of the FY04 field investigation at Other O-Field Areas will be summarized in an addendum to the O-Field RI. If needed, a separate FS, Proposed Plan and ROD will be prepared for this portion of EAOF04 in late FY04 (already funded). Based on limited sampling conducted from 1993-97, no active remediation of Other O-Field Areas is anticipated.

Westwood Area
EAWW00

SITE DESCRIPTION

The Westwood Study Area (WSA) was used from 1918 to the 1970s for a variety of testing and training activities, material storage, manufacturing and munition assembly operations, and waste disposal activities. During the WWII era, a portion of the WSA west of Reardon Inlet was an impact area for incendiary bomb testing and for the static testing of bombs and grenades. Additional work west of Reardon Inlet included mustard contamination/decontamination, demilitarization, sealed source radiological testing and training activities, and radiological waste processing operations. East of Reardon Inlet contained chlorine and gas mask manufacturing facilities, laboratories, radiological vulnerability test sites, and storage areas. Contaminants of concern within the WSA include VOCs, inorganic compounds, and radiological compounds.

STATUS

CONTAMINANTS: VOCs, Inorganics, Radiological Compounds

MEDIA OF CONCERN: Groundwater, Surface Water, Sediment, Surface Soil

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS (funded)

FUTURE IRP PHASE:
LTM

PROPOSED PLAN

The conceptual site model is being refined based on the RI data. Additional collection of data is underway to support the FS (funded prior to FY05). Remedial actions for this study area are difficult to predict at this time because evaluation of the baseline risk assessment is still underway.

The LTM and well abandonment costs for all of the Westwood Area will be reported under this site. The IAP includes costs for LTM, institutional controls, public education and well abandonment only.

It is possible that shoreline stabilization (near waste dump area) UXO and military-unique material along the boundary/shoreline and potential UXO off post (Gunpowder River) will need to be addressed (likely funded with non-IRP funds).

Material Storage/ RAD Test Site
EAWW02-A

SITE DESCRIPTION

Little historical documentation exists regarding the Material Storage Site. Aerial photographs taken of the site in 1957 indicate open storage in the area. Eight gravel pads once existed at the site. The Radiological Test Site was used during the 1960s and early 1970s for performing sealed source vulnerability testing to determine potential fallout impacts. No historical information exists to indicate potential environmental contamination resulting from material storage or radiological testing in this area. Several mounds containing magnetic anomalies exist in the western and southern portion of the site.

A permitted debris landfill now exists on top of these sites. The landfill has been used since 1980s for the disposal of certain land-clearing wastes, demolition debris, construction debris, asbestos and dewatered water treatment plant sludge. The landfill closed in 2001.

This site is currently in the RI/FS phase: contaminants of concern at EAWW-02-A include VOCs, SVOCs, pesticides and inorganics compounds.

STATUS

CONTAMINANTS:
VOCs, SVOCs, Inorganics, Pesticides

MEDIA OF CONCERN: Groundwater, Surface Water, Sediment, Soil

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS (funded), RD, RA

FUTURE IRP PHASE:
RC

PROPOSED PLAN

Additional FS field activities are planned for spring 2004 to gather engineering data to evaluate the potential remedial alternatives for this site. Potential soil removal may be needed.

Remedial action cost decrease in 2004 (greater then 10%) based on application of APG - specific waste disposal contact costs and RACER induced changes.

Mounds - Cluster 2
EAWW02-D

SITE DESCRIPTION

This site is made up of 2 mound areas, a drum dump area (0.1 acres) and a fill area (1.3 acres).

Two mound areas (designated A and B) (total of 0.25 acres), were identified during field reconnaissance in 1994. Knowledge of the historical usage of these areas is unknown. Mound A contains UXO fragments visible from the surface at various locations around the mound. A concrete block is located slightly west of Mound A and is believed to have been a static firing platform for munitions testing. Visual examinations of Mound B revealed trash, metal buckets, and paint pails near the mound.

FS geophysical investigation and site inspections in 2001 also identified 1 or 2 additional potential hot spots (subsurface) areas of waste material nearby.

This site is currently in the RI/FS phase; contaminants of concern include inorganic compounds, metals and pesticides.

STATUS

CONTAMINANTS:
Inorganics, Pesticides, Metals

MEDIA OF CONCERN: Groundwater, Surface Water, Sediment, Soil

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS (funded)

FUTURE IRP PHASE:
RD, RA

The WW-90 Drum Dump and Fill Area is an ~1.3 acre site discovered during a UXO Survey of the Installation boundry area. Visual inspection of the fill area revealed small amounts of demolition material on the surface and areas of land subsidance. The subsidance is presumably due to compaction in the fill materials. Three geophysical surveys (Apr 01, Nov 01, Mar 02) were conducted in the area. Magnatic results of the Drum Dump area indicated EM anomalies. Siesmic refraction results indicated Drum Dump debris most likely represents discrete objects or a small group of objects burried at shallow depths. EM and magnetic surveys at the Fill Area delineated the extent of the suspected fill area to ~40ft south into a marsh inlet.

PROPOSED PLAN

Waste and associated contaminated soil removal may be needed. Additional FS field activities are planned for spring 2004 to gather engineering data to evaluate the potential remedial alternatives for this site.

2004 remedial action cost increased (greater then 10%) based on waste disposal amount change from 3,857 cy to 6,171 cy and modification of transportation and disposal cost.

Disposal/Burn Pits
EAWW02-E

SITE DESCRIPTION

The Grenade/Incendiary Disposal/Burn Pit Area was a former disposal area located just south of the Installation boundary. Three disposal locations (Pits A, B, C) were identified during a surface UXO survey of the area in 1996. Ordnance and explosive waste from historical testing and/or training were disposed at the three locations within the site by dumping along a shallow ravine. One site had been used as a burn pit, another site close by contained items which had been burned (possibly in the burn pit), and the third site contained surface dumped items which appeared to have functioned as designed and may have been recovered during range clearance. A Removal Action at Pits A, B and C, consisting of excavation and disposal, was initiated in February 2000 and completed in March 2000. Items recovered include fused but unfilled smoke grenades, pieces of incendiaries, non-energetic metallic items, and slag. All recovered items date from 1945 through 1952. No high explosive or chemical rounds were found.

In the spring of 2001, a fourth site (Pit D) was identified south of former Pit A, in the same ravine. A removal action, involving excavation and disposal was conducted in Nov 2001. Items recovered included grenade/incendiary components, molten slag and non-energentic metallic items.

STATUS

CONTAMINANTS:
Metals, Buried Debris, UXO

MEDIA OF CONCERN: Groundwater, Surface Water, Sediment, Soil

RRSE RATING:
Medium

COMPLETED IRP PHASE:
PA/SI, IRAs

CURRENT IRP PHASE:
RI/FS (funded)

FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Based on the FS geophysical investigations, the potential for additional disposal sites still exists. Soil and waste removal may be needed.

RAD Material Disposal Facility/ Demil Site
EAWW06

SITE DESCRIPTION

EAWW06 consists of the Westwood Radioactive Material Disposal Facility (WRMDF) and the Demilitarization Site. Beginning as early as 1957, the WRMDF was used for radioactive waste handling until the early 1960s. The WRMDF was additionally the site of radioactive research and development work for a short time during the early 1960s. Aboveground structures associated with the WRMDF were demolished during the 1970s. The Demilitarization Site was used for a short time during the late 1940s or early 1950s for demilitarization operations, primarily for defusing incendiary munitions.

In September 1998, a removal action was performed at this site to remove three contaminated underground wastewater discharge lines, a septic tank, and radioactive contaminated soil. Based on FS geo-physical investigations and site inspections, the potential for additional disposal areas and utilities within the site still exists.

This site is currently in the RI/FS phase; contaminants of concern include pesticides, inorganic compounds, explosives, and low-level radiological compounds.

STATUS

CONTAMINANTS: Radiologicals, Pesticides, Metals, Explosives

MEDIA OF CONCERN: Groundwater, Surface Water, Sediment, Soil

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI, IRA

CURRENT IRP PHASE:
RI/FS (funded)

FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Additional FS field activities planned for spring 2004 to gather engineering data to evaluate potential remedial alternatives for this site. Soil, utilities and waste removal may be needed.

Remedial action cost decrease in 2004 (greater then 10%) based on application of APG - specific waste disposal contract cost and RACER induced changes.

Roads End Disposal Site - Cluster 10
EAWW10-A

SITE DESCRIPTION

The Roads End Disposal Site is located within a portion of the WSA that was used during the WWII-era by the Chemical Warfare School as a gas obstacle course and during the post-WWII period until the early 1970s by U.S. Army Technical Escort Unit personnel for a variety of test and training activities. A 1964 aerial photograph of the Roads End Disposal Site indicates five parallel linear futures which may have been trenches for potential disposal of unknown materials or remnants of barbed wire barriers used in the Chemical Warfare School's obstacle course.

Geophysical survey investigations did reveal one long linear magnetic anomaly in the western portion of the site; two magnetic anomalies in the northern portion of the site; however, no visible evidence of surface contamination or areas of subsidance exist at the site.

This site is currently in the RI/FS phase; contaminants of concern include VOCs, SVOCs, pesticides, and inorganic compounds.

STATUS

CONTAMINANTS:
Inorganics, VOCs, SVOCs, Pesticides
MEDIA OF CONCERN: Groundwater, Surface Water, Sediment, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded),
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Based on FS geophysical investigation, the potential for disposal sites exists. Additional FS field activities planned for spring 2004 to gather engineering data to evaluate potential remedial alternatives for this site. Soil and waste removal may be needed.

Hog Point Site - Cluster 10
EAWW10-B

SITE DESCRIPTION

The Hog Point Site is a 1.4 acre area within a portion of the WSA that was used during the WWII-era for part of the Chemical Warfare School's gas obstacle course. During the 1960s and 1970s, the U.S. Army Technical Escort Unit used portions of this area for mustard contamination/decontamination and demilitarization testing and training activities. Several structures built in the area no longer exist. Three former open storage areas also exist within the Hog Point Site. Several small berms and an area of subsidance were noted during field examinations of the open storage areas.

This site is currently in the RI/FS phase; contaminants of concern include VOCs, SVOCs, pesticides and inorganic compounds.

STATUS

CONTAMINANTS:
Inorganics, VOCs, SVOCs, Pesticides
MEDIA OF CONCERN: Groundwater, Surface Water, Sediment, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Based on FS geophysical investigation and XRF survey results, the potential for source areas exists. Additional FS field activities planned for spring 2004 to gather engineering data to evaluate potential remedial alternatives for this site. Source removal may be needed.

Remedial action cost decrease in 2004 (greater then 10%) based on application of APG - specific waste disposal contract cost and RACER induced changes.

Building E-5695 Area - Cluster 14
EAWW14-B

SITE DESCRIPTION

The Building E5695 Area is a 4.6 acre area consisting of several buildings. Dating back to 1941, this site has been used for several purposes: protective equipment production; temporary storage of chemical and radiological waste; satellite accumulation of hazardous wastes; and processing, handling, and storage of highly radioactive materials. The various buildings associated with this site have operated over time as a nuclear physics and chemical laboratory, a warehouse, a radiological laboratory, a chemical laboratory, a radiation hot cell facility, and a x-ray and metallurgical facility. Currently, the U.S. Army uses this area for maintenance and storage of smoke generators, satellite accumulation of hazardous wastes, and vehicle storage.

Closure of the underground industrial wastewater collection system associated with Building E5695 was completed in Feb 2001. Post-excavation sampling at the site identified elevated levels of Cesium-137 in soil underlying the system. Bldg E5695 is scheduled for demolition.

This site is currently in the RI/FS phase; contaminants of concern include VOCs, SVOCs, pesticides, and inorganic compounds.

STATUS

CONTAMINANTS:
Inorganics, VOCs, SVOCs, Pesticides
MEDIA OF CONCERN: Groundwater, Surface Water, Sludge, Soil
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Based on the Draft Radiological Risk Assessment, the potenial for a source area still exists. The FS report, scheduled to be completed in summer 2004, will evaluate potential remedial alternatives for this site. Waste and soil removal may be needed.

Gas Mask Factory/ WWI Chlorine Plant
EAWW14-C

SITE DESCRIPTION

The WWI Chlorine Plant was constructed and began production in 1918. The plant was in operation for only a few months and produced ~4,000 tons of chlorine. Following WWI, portions of the chlorine plant facilities were converted for other uses, including for use as a gas mask factory. The Gas Mask Factory occupied some of the former WWI Chlorine Plant facilities. The principal waste of mask and filter production results from the screening of charcoal and Whetlerite (activated charcoal impregnated with silver, copper, and chromium). Four potential pit-like features and a waste dump are associated with the Stokes Road East Site. Three of the pit-like features are filled in part with demolition debris. A removal action was conducted in 1996 to remove a large amount of surface material found within the waste dump. The Stokes Road West Site contains an area of subsidance and the remains of a former building structure, possibly the WWI Chlorine Plant electrical substation.

This site is currently in the RI/FS phase; contaminants of concern include VOCs, SVOCs, inorganic compounds, and pesticides.

STATUS

CONTAMINANTS:
Metals, VOCs, SVOCs, Pesticides

MEDIA OF CONCERN: Groundwater, Surface Water, Sediment, Soil

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI, IRA

CURRENT IRP PHASE:
RI/FS (funded)

FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Based on FS XRF survey results (at the Gas Mask Factory and Stokes Road East Site), the potential for source areas exists. Additional FS field work is planned for spring 2004 to gather engineering data to evaluate potential remedial activities for this site. Waste and soil removal is likely.

Remedial action cost decrease in 2004 (greater then 10%) based on application of APG - specific waste disposal cost and RACER induced changes.

San Domingo Munitions Plant - Cluster 21
EAWW21-B

SITE DESCRIPTION

The San Domingo Munitions Assembly Plant occupied several buildings constructed during WWII for use as ordnance assembly plant facilities. One of the buildings was used from the mid-1950s until the mid-1960s for the assembly of munitions filled with GB and VX, and later for experimental assembly of binary munitions. The former munitions assembly buildings have since been used intermittently for small-scale research, development, testing, and evaluation work, but have mainly been used as storage facilities in recent years. An inspection of the area located historical small-scale dumping of construction/demolition debris east of the former assembly plant and along a nearby drainage ditch. These materials appear to have been dumped during or prior to WWII.

Closure of an underground storage tank near Bldg E5803 was completed in Feb 2001. Approximately 35cy of POL-contaminated soil was removed.

This site is currently in the RI/FS phase. Contaminants of concern include POL, VOCs, SVOCs, pesticides, PCBs, and inorganic compounds.

STATUS

CONTAMINANTS: POL, Inorganics, VOCs, SVOCs, Pesticides, PCBs

MEDIA OF CONCERN: Grounwater, Surface Water, Sediment, Soil

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS (funded)

FUTURE IRP PHASE:
RD, RA

PROPOSED PLAN

Additional FS field work activities are planned for spring 2004 to gather engineeering data to evaluate potential remedial activities at this site. Additional soil removal is likely.

Remedial action cost increase (greater then 10%) due to assumption that 50% of waste will be disposed as non-hazardous soil and 50% will be non-hazardous, oil-contaminated soil. Cost increase also result of modification of off-site transportation and disposal cost for the bulk solids.

Building E5830 Landfill - Cluster 21
EAWW21-D

SITE DESCRIPTION

The Building E5830 Landfill is an ~3-acre area used as an early filling and dumping area for building debris, demolition debris, and other waste materials. No specific information is known regarding the types of wastes placed in the landfill. The site is currently heavily wooded – if heavy machinery was used for dumping, it would have occurred many years ago. The EM survey of this site revealed a series of moderately sized anomalies which correspond to areas containing visible surface material. Based on the geophysical survey results, the E5830 Landfill is not a landfill in the traditional sense, but an area with limited surface dumping and some associated subsurface materials.

This site is currently in the RI/FS phase; contaminants of concern include VOCs, SVOCs, pesticides, and inorganic compounds.

STATUS

CONTAMINANTS:
Inorganics, VOCs, SVOCs, Pesticides
MEDIA OF CONCERN:
Surface Water, Surface Soil, Sediment
RRSE RATING:
High
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded), RD
FUTURE IRP PHASE:
RA

PROPOSED PLAN

Likely removal of surface waste and contaminated soil.

Remedial action cost in 2004 (greater then 10%) based on application of APG - specific waste disposal cost and RACER induced changes.

WWI Chlorine Plant Dump - Cluster 21
EAWW21-E

SITE DESCRIPTION

The WWI Chlorine Plant Dump appears to be the site into which brine sludges from the WWI Chlorine Plant (EAWW14-C) were discharged. This supposition is supported by the presence of white crumbly material, which is suspected of being the remains of brine sludge from chlorine manufacture. The WWI Chlorine Plant Dump may also have been used to dispose of demolition debris and other waste materials from the dismantling of the WWI Chlorine Plant facilities. Site reconnaissance identified the presence of leachate on the east side of the dump/landfill.

In April 1996, a removal action was conducted to remove surface material scattered throughout the site.

This site is currently in the RI/FS phase; contaminants of concern include VOCs, SVOCs, pesticides, and inorganic compounds.

STATUS

CONTAMINANTS:
Inorganics, VOCs, SVOCs, Pesticides

MEDIA OF CONCERN: Groundwater, Surface Water, Sediment, Surface Soil

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI, IRA

CURRENT IRP PHASE:
RI/FS (funded), RD

FUTURE IRP PHASE:
RA

PROPOSED PLAN

Additional FS field work activities are planned for spring 2004 to gather engineeering data to evaluate potential remedial activities at this site. Waste/soil removal and a soil cover is likely.

Remedial action cost decrease in 2004 (greater then 10%) based on application of APG - specific waste disposal contract cost and RACER induced changes.

Ground Scar Area - Cluster 2
EAWW02-B

SITE DESCRIPTION

The Ground Scar Area may have served as a storage area or as an additional location for munitions training exercises. Ground scarring activity observed in aerial photographs dated 1952, 1957, and 1964 is likely due to the construction and presence of five small buildings within the area. A March 1966 building directory indicates that one building was a laboratory, two buildings were storehouses, and the remaining two buildings were explosives barricades. By 1969, only one of the storehouse buildings still remained. The Ground Scar Area is currently vegetated with a dense secondary growth forest and slopes toward a nearby marsh.

This site is currently in the RI/FS phase; Contaminants of concern include pesticides and inorganic compounds, VOCs, SVOCs, and explosives.

Based on the draft HH and Eco Risk Assessment, it is likely that there will be no active remediation at this site.

STATUS

CONTAMINANTS: VOCs, Inorganics, SVOCs, Explosives, Pesticides

MEDIA OF CONCERN: Groundwater, Surface Water, Sediment, Soil

RRSE RATING:
Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS (funded)

FUTURE IRP PHASE:
RC

Open Gravel Depression - Cluster 2
EAWW02-C

SITE DESCRIPTION

The Open Gravel Depression is a 0.5-acre site located in the southern portion of the Material Storage Site (EAWW02-A). Upland marsh surrounds the majority of this site, which consists of gravel and grass patches. Although historical usage is unknown, the area may have been one of the gravel pads used for material storage. An UXO hazard warning sign is posted at the edge of the area and little vegetation grows in the gravel area.

This site is currently in the RI/FS phase; Contaminants of concern include inorganic compounds and pesticides.

Based on the draft HH and Eco Risk Assessment, it is likely that there will be no active remediation at this site.

STATUS

CONTAMINANTS:
Inorganics, Pesticides

MEDIA OF CONCERN:
Groundwater, Surface Water

RRSE RATING:
Medium

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS (funded)

FUTURE IRP PHASE:
RC

Piney Point Site - Cluster 10
EAWW10-C

SITE DESCRIPTION

During the mid-1940s and 1950s, the U.S. Army Chemical Corps School used the Piney Point Site for radiological defense training. Part of the Chemical Warfare School's gas obstacle course also existed in this area. Aerial photographs from 1957 and 1960 indicate that the Piney Point Site was being used for storage of drum-like objects. Miscellaneous demolition material and numerous, large concrete slabs were noted during field examinations of the site. A January 1943 site drawing indicates an offshore target area existed in the Gunpowder River 1,900 ft from the shore. Firing points to the target area existed on Piney Point and Hog Point (EAWW10-B). Recent inspections of the shoreline between Piney Point and Hog Point revealed waste remnants from the former firing operations in this area.

This site is currently in the RI/FS phase; contaminants of concern include VOCs, SVOCs, pesticides, and inorganic compounds.

Based on the draft HH and Eco Risk Assessment, it is likely that there will be no active remediation at this site.

STATUS

CONTAMINANTS:
Inorganics, VOCs, SVOCs, Pesticides
MEDIA OF CONCERN: Groundwater, Surface Water, Sediment, Soil
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

Linear Features Site - Cluster 10
EAWW10-D

SITE DESCRIPTION

The Linear Features Site is a one-acre site located between the Hog Point Site (EAWW10 -B) and Piney Point Site (EAWW10-C). A 1960 aerial photograph of this site shows two linear features that may have been narrow trenches; however, visual examination of this site reveals no obvious indication of the linear features.

This site is currently in the RI/FS phase; contaminants of concern include VOCs, SVOCs, pesticides, and inorganic compounds.

Based on the draft HH and Eco Risk Assessment, it is likely that there will be no active remediation at this site.

STATUS

CONTAMINANTS:
Inorganics, VOCs, SVOCs, Pesticides
MEDIA OF CONCERN:
Groundwater, Sediment, Soil
RRSE RATING:
Medium
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

Impoundment Site - Cluster 10
EAWW10-E

SITE DESCRIPTION

The Impoundment Site consists of a man-made, sloping, road-like feature which terminates in a small man-made impoundment (i.e., pond). The estimated depth of the pond is four feet. The former use of this pond is unknown.

This site is currently in the RI/FS phase; contaminants of concern include VOCs, SVOCs, pesticides, and inorganic compounds.

Based on the draft HH and Eco Risk Assessment, it is likely that there will be no active remediation at this site.

STATUS

CONTAMINANTS:
Inorganics, VOCs, SVOCs, Pesticides
MEDIA OF CONCERN: Groundwater, Surface Water, Sediment, Soil
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

Wetland Site - Cluster 10
EAWW10-F

SITE DESCRIPTION

The Wetland Site consists of a small, one-acre wetland that occurs in the drainage basin immediately to the east of the Piney Point Site (EAWW10-C). Field inspections of the site prior to 1993 revealed demolition material and household/yard waste along the eastern edge of the site. These wastes were removed in 1993; however, additional wastes have accumulated.

This site is currently in the RI/FS phase; contaminants of concern include VOCs, SVOCs, pesticides, and inorganic compounds.

Based on the draft HH and Eco Risk Assessment, it is likely that there will be no active remediation at this site.

STATUS

CONTAMINANTS:
Inorganics, VOCs, SVOCs, Pesticides
MEDIA OF CONCERN:
Groundwater, Soil
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI
CURRENT IRP PHASE:
RI/FS (funded)
FUTURE IRP PHASE:
RC

Building E-5770 Area/ Magnolia Rd RAD Test
EAWW14-A

SITE DESCRIPTION

EAWW14-A consists of the Building E5770 Area and the Magnolia Road Radiological Test Site. Several buildings were constructed in the Building E5770 Area during the late 1930s and WWII. This site and associated buildings have been used for several purposes: Reserve Officers Training Corps facilities; chemical testing (e.g., fuel thickener testing); metal and wood working fabrication; equipment calibration; storage of radiation calibration check and vulnerability test sources; and research. Currently, the Building E5770 Area is used for maintenance and storage of equipment and vehicles.

The Magnolia Road Radiological Test Site was used during the 1960s by U.S. Army Nuclear Defense Laboratory to perform tests using sealed sources of radionuclides to determine potential fallout impacts.

This site is currently in the RI/FS phase; contaminants of concern include VOCs, SVOCs, inorganic compounds, pesticides, and explosives.

Based on the Draft Radiological Risk Assessment it is likely that there will be no action remediation at this site.

STATUS

CONTAMINANTS: Inorganics, VOCs, SVOCs, Pesticides, Explosives

MEDIA OF CONCERN:
Groundwater, Surface Water, Soil

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS (funded)

FUTURE IRP PHASE:
RC

San Domingo Ordnance Burial Pit - Cluster 21
EAWW21-A

SITE DESCRIPTION

Limited historical information is available regarding the San Domingo Ordnance Burial Pit. Entries in a surveyors field notebook dated from February 1944 through November 1945 indicate that period as the time of ordnance burial at this site. No information is available regarding the specific type of ordnance buried; however, the types of assembly operations at the neighboring San Domingo Munitions Assembly Plant (EAWW21-B) during WWII suggests that the items were unserviceable, off-specification, and/or nonreworkable. The Edgewood RFA indicates the ordnance were later excavated. The results of a geophysical investigation at the reported burial area showed no presence of buried metallic materials or magnetic anomalies.

This site is currently in the RI/FS phase; contaminants of concern include VOCs, pesticides, and inorganic compounds.

No further active remediation is expected.

STATUS

CONTAMINANTS:
VOCs, Pesticides, Inorganics

MEDIA OF CONCERN:
Surface Soil

RRSE RATING:
Low

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS (funded)

FUTURE IRP PHASE:
RC

Building E5664 (Ground Scar Area) - Cluster 21
EAWW21-C

SITE DESCRIPTION

Limited historical information is available regarding the Building E5664 Ground Scar Area. An area of ground scarring was identified during examinations of a 1971 aerial photograph of the site, which potentially indicates recent fill activities. A caustic fusion facility and drum making shop associated with the WWI Chlorine Plant (EAWW14-C) were located in this area. A ground scar matching the footprint of the former drum making shop was identified in the 1971 aerial photograph. Construction material located during field reconnaissance of the area further indicates that this site contains the demolition debris and foundation area of the former drum making shop. An EM survey of this site located two linear anomalies, which appear to be unidentified underground utilities or former utilities. Based on the geophysical survey, no fill area exists at Building E5664 Ground Scar Area.

This site is currently in the RI/FS phase; contaminants of concern include VOCs, SVOCs, pesticides, and inorganic compounds.

Based on the draft HH and Eco Risk Assessment, it is likely that there will be no active remediation at this site.

STATUS

CONTAMINANTS:
Inorganics, VOCs, SVOCs, Pesticides

MEDIA OF CONCERN:
Groundwater, Surface Soil

RRSE RATING:
Low

COMPLETED IRP PHASE:
PA/SI

CURRENT IRP PHASE:
RI/FS (funded)

FUTURE IRP PHASE:
RC

White Phosphorus Underwater Munitions Burial
AAWP01

SITE DESCRIPTION

The White Phosphorus Underwater Munitions Burial Area is located offshore from the APG-AA, on the western side of the Chesapeake Bay. An unknown amount of WWI white phosphorus munitions are suspected to have been buried in the vicinity of Black Point in the Chesapeake Bay during the 1922-1925 timeframe. A 1988 investigation did not locate the white phosphorus burial site. A ROD signed in September 1991 recommended no action for the site. A 5-year technology review concluded that no new technology warranted a re-investigation of this site.

No further action is required at the site.

STATUS

CONTAMINANTS:
Munitions, White Phosporus
MEDIA OF CONCERN:
Surface Water, Sediments
RRSE RATING:
Low
COMPLETED IRP PHASE:
PA/SI, RI/FS
CURRENT IRP PHASE:
RC - 1991

Shoreline Cleanup
APGS00

SITE DESCRIPTION

Shoreline cleanup was initiated by APG to remove refuse (both hazardous and nonhazardous) and CWM/UXO from the shorelines at both the Aberdeen and Edgewood Areas of APG. This project covered approximately 105 miles of shoreline. Starting in FY97, shoreline cleanup will be completed under the individual study areas.

No further action will be completed under APGS00.

STATUS

CONTAMINANTS:
Refuse, Haz and Non-Hazardous Waste, UXO
MEDIA OF CONCERN:
Surface Water, Sediment, Soil
RRSE RATING:
NE
COMPLETED IRP PHASE:
PA/SI, IRAs, RA
CURRENT IRP PHASE:
RC - 1997

Building E5625 - Pilot Plant
EAPP00

SITE DESCRIPTION

Building E5625 lies close to the West Branch of Canal Creek in the old chemical plants area. Research and development activities related to chemical warfare occurred at the Pilot Plant from the mid-40s to early 1986. The complex was dismantled. Since FY97, EAPP00 has been funded under the Chemical Agent Demilitarization Disposal Defense (CADDD).

No further action using ER,A funds is anticipated at the site.

STATUS

CONTAMINANTS:
Chem. Agents, Chlorinated Solvents, Metals, PCBs

MEDIA OF CONCERN:
Soil

RRSE RATING:
High

COMPLETED IRP PHASE:
PA/SI, RI/FS

CURRENT IRP PHASE:
RC- 1996

PAST MILESTONES

IRP PA/SI Initiation		4th Qtr FY76
PA, Installation-Wide Completion		Jan 83
RFI (HGA)		
·	AAWB02 (PAALF)	May 88
·	EAOF00 (O-Field)	1989
·	EANS00 (Cluster 1-Nike Site)	Feb 90
·	AAML00 (Michaelsville Landfill)	May 90
·	EACI00 (Carroll Island)	1991
·	EAGQ00 (Graces Quarters)	1991
·	AAWB03 (Western Boundary-FTA)	Dec 92
RFA - Edgewood Area		Nov 89
RFA - Aberdeen Area		Sep 90
RI	AAWP01 (WPUMBA)	Jan 90
ROD	AAWP01 (WPUMBA), No Further Remedial Action Planned	Sep 91
ROD	EAOF01 (Old O-Field OU1), Groundwater Extraction and Treatment System (GWTS)	Sep 91
ROD	AAML01 (MLF OU1), Installation of Landfill Cap & Cover System	Jun 92
RA	AAML01 (MLF OU1), Cap Installation	Aug 94
ROD	EAOF02 (Old O-Field OU2), Permeable Infiltration Unit (PIU) Installation	Oct 94
RD	EAOF01 (Old O-Field OU1) Complete Remedial Design of GWTS	Jan 95
RD	EAOF02 (Old O-Field OU2) Complete Remedial Design of PIU	Feb 95
RA	EAOF01 (Old O-Field OU1) Complete Remedial Action Construction of GWTF	Apr 95
RI/FS	EANS00 (Cluster 1-Nike Site EANS01-A,B,C,D,E,F,G,H,I,J,K)	Jun 95
ROD	EACC1H-E (Bldg. 103 Dump) Construct Cap	Sep 95
ROD	EACC1L-A (Bldg. 503 Burn Sites Soil OU) Excavate Contaminated Soil	Apr 96
ROD	EACI01-A,C; EACI02-A,C; EACI03; EACI04-B,D; EACI05-D,E; EACI06-E; EACI08 (Carroll Island OUA - Disposal Sites) Excavate Disposal Sites	Sep 96
ROD	EAJF05 & EAJF05-A (J-Field Toxic Burning Pits) Excavate Contaminated Soil	Sep 96
ROD	EANS01-A,B,C,D,E,F,G,H,I,J,K (Cluster 1, Former Nike Missile Site) Construct Cap over Landfill, Sewer System Closure, Groundwater Extraction and Treatment System	Sep 96
RD	EACC1H-E (Bldg. 103 Dump) Complete Remedial Design of Cap	Sep 96
RD	EACC1L-A (Bldg. 503 Burn Sites Soil OU) Complete Remedial Design to Excavate Contaminated Soil	Sep 96
RI	AAML02 (Groundwater OU2)	Jun 97
RD	EANS01-C (Cluster 1 - Nike Site) Abandonment of Sanitary Sewer System	Jun 97
RD	EACI01-A,C;02-A,C;04-B,C,D;05-D,E;06-B;08 (Disposal Sites OUA) Excavate Sites	Sep 97
ROD	AAML02 (Groundwater OU2) No Further Action w/ LTM	Sep 97
ROD	EAOF03 (Sediment and Surface Water OU3) Maintain Restricted Access w/LTM	Sep 97
ROD	EACC3N (Beach Point Groundwater OU) No Further Action w/ LTM	Sep 97
RI	EACI00 (Carroll Island Overall)	Oct 97
RA	EANS01-C (Cluster 1 - Nike Site) Abandonment of Sanitary Sewer System	Nov 97
RD	EANS01-D (Cluster1 - Nike Site) Install Cap over Southwest Landfill	Nov 97
RD	EAJF05, 05-A (Toxic Burning Pits) Excavate Contaminated Soil	Apr 98
RI	EAJF00 (J-Field Overall)	Jun 98
RI	EABR03-A (Cluster 3, Old Bush River Road Dump)	Aug 98
RA	EANS01-D (Cluster 1, Southwest Landfill Site) Install Cap over Landfill	Aug 98
IRA	EAOF02 (Old O-Field Source OU2) Install Permeable Infiltration Unit over Old O-Field Landfill	Aug 98
RD	EAJF05, 05-A (Toxic Burning Pits) Shoreline Stabilization	Sep 98

PAST MILESTONES

ROD	EABR03-A (Cluster 3, Old Bush River Road Dump) Place Covering over Dump	Feb 99
ROD	EACC4A (Canal Creek Groundwater Operable Unit - Remedial Action)	Feb 99
IRA	EAJF05, 05-A (Toxic Burning Pits) Shoreline Stabilization	Feb 99
RD	EANS01-A (Groundwater) Treatment System Design	Feb 99
IRA	EABR15A (Kings Creek Area) Contaminated Soil Removal	May 99
IRA	EACI02-A (Service Area Septic System/ Sump) Abandon-in-place	July 99
RD	EABR03-A (Old Bush River Road Dump) Cover Design	Dec 99
RA	EACI01-A,C; 02-A,C; 03; 04-B,C,D; 05-D,E; 06-B; 08 (Disposal Pits) Excavation	Dec 99
IRA	EAWW02-E Disposal/Burn Pits - Removal	Mar 2000
RI/FS	AAWB01 Western Boundary Area Groundwater - OU1	Jun 2000
RA(C)	EACI08 Lower Island Disposal Site - Cluster 8 - Waste Removal - Drums, Tanks, Bulk Containers	Jun 2000
RI/FS	EACC4A Canal Creek Aquifer - Cluster 4A	Jul 2000
RI/FS	AAOA11 Other Aberdeen Areas - Waste Treatment Plant	Sept 2000
RI/FS	AAOA13 CSTA Buried Drum Site, Bldg 896	Sept 2000
RI/FS	AAOA14 WP Munitions Burial Area	Sept 2000
RI/FS	EABR11-A 26th Street Disposal Site (1) - Cluster 11	Sept 2000
RI/FS	EABR11-C 22nd Street Landfill - Cluster 11	Sept 2000
RI/FS	EABR11-D Bldg 45-A Ammo Renovation Facility - Cluster 11	Sept 2000
RI/FS	EABR11-E CASY Incinerator - Cluster 11	Sept 2000
RI/FS	EABR15-C Ton Container Storage - Cluster 15	Sept 2000
RI/FS	EABR15-D Surficial Aquifer - Cluster 15	Sept 2000
RI/FS	EABR18-A Tapler Pit Dredge Material Site - Cluster 18	Sept 2000
RI/FS	EABR18-B Chemical Munitions Burial Site (4) - Cluster 18	Sept 2000
RI/FS	EABR18-C Igloo Storage Areas - Cluster 18	Sept 2000
RI/FS	EABR18-D A-Field Test Sites (2) - Cluster 18	Sept 2000
RI/FS	EABR18-F Surficial Aquifer - Cluster 18	Sept 2000
RI/FS	EALC05-C Concrete Slab Dump Area 1 - Cluster 5	Sept 2000
RI/FS	EALC05-D Concrete Slab Dump Area 2 - Cluster 5	Sept 2000
RA(C)	EABR03-A Old Bush River Road Dump - Cluster 3, Capping	Nov 2000
RA(C)	EALC09-B Nike Control Septic Tanks/Sand Filter - Cluster 9, Removal	Nov 2000
RI/FS	EAJF00 J-Field Study Area	Mar 2001
RI/FS	EAJF02 Prototype Building	Mar 2001
RI/FS	EAJF03 CS/CN Area (Riot Control Burning Pits)	Mar 2001
RI/FS	EAJF05-B TBP - Surficial Aquifer	Mar 2001
RI/FS	EAJF06 South Beach Demolition Ground	Mar 2001
RI/FS	EAJF07 South Beach Trench	Mar 2001
RI/FS	EAJF08 X1 Ruins Site Southwest of Intersection	Mar 2001
RI/FS	EAJF09 Drainage Grid - Area A	Mar 2001
RI/FS	EAJF10 Ford's Point Firing Range - Area B	Mar 2001
RI/FS	EAJF11 Ruins Site Northeast of Intersection - Area C	Mar 2001
RI/FS	EAJF12 Ruins Site Across Road from WWP (RNS Site)	Mar 2001
RI/FS	EAJF13 Swamp 400'E of Ruins Site - Area D	Mar 2001
RI/FS	EAJF14 Robins Point Tower Site	Mar 2001
RD	EAJF05 Toxic Burning Pit	Apr 2001
RD	EAJF05-A TBP - Southern Main Pits Overall	Apr 2001
IRA	EABR03-B Transformer Storage - Cluster 3, Removal	Sept 2001
RD	EAJF00 J-Field Study Area	Sept 2001

Schedule

RD	EAJF05-B TBP - Surficial Aquifer	Sept 2001
RD	AAWB01 Western Boundary Area Groundwater - OU1	Nov 2001
RA(C)	EAJF05 Toxic Burning Pit, Capping	Nov 2001
RA(C)	EAJF05-A TBP - Southern Main Pits Overall, Capping	Nov 2001
IRA	EAWW02-E Disposal/Burn Pits, Removal	Nov 2001
RD	EACI00 Carroll Island Study Area	Jun 2002
RD	EAGQ00 Graces Quarters Study Area	Jun 2002
RD	EALC05-C Concrete Slab Dump Area 1 - Cluster 5	Jul 2002
IRA	EAOE04 D-Field Aerial Spray Grid - Cluster 4, Removal	Jul 2002
RD	EACC4A Canal Creek Aquifer - Cluster 4A	Aug 2002
RI/FS	AAOA06 German Ammunition Train Explosion Area	Sept 2002
RI/FS	EABR03-B Transformer Storage - Cluster 3	Sept 2002
RI/FS	EABR07-A Boat Club Fill Site (4) - Cluster 7	Sept 2002
RI/FS	EABR07-B Bio-Sensor Facility - Cluster 7	Sept 2002
RI/FS	EABR15-B 30th Street Landfill - Cluster 15	Sept 2002
RI/FS	EABR35-A Maintenance Yard - Cluster 35	Sept 2002
RI/FS	EABR35-B Bldg E2144/2148/2150 - Cluster 35	Sept 2002
RI/FS	EABR36-A Warehouse Storage Areas - Cluster 36	Sept 2002
RI/FS	EABR36-B Bldg 846 Waste Disposal Site - Cluster 36	Sept 2002
RA(C)	EAGQ00 Graces Quarters Study Area	Sept 2002
RI/FS	EAJF04 Robins Point Demolition Ground	Sept 2002
RA(C)	EAJF05-B TBP - Surficial Aquifer, Capping	Nov 2002
IRA	EACC6 HMF/UST Removal/Closure, Removal	Dec 2002
RA(C)	EACC6 HMF/UST Removal/Closure, Waste Removal	Dec 2002
RI/FS	EAGQ02-D Surficial Aquifer - Cluster 2	Dec 2002
RA(C)	EACC4A Canal Creek Aquifer - Cluster 4A, GW Treatment	Apr 2003
RA(C)	AAWB01 Western Boundary Area Groundwater - OU1, Carbon Adsorption	Sept 2003
RI/FS	EABR18-E Bush River Dock (E2396) - Cluster 18	Sept 2003
IRA	EALC00 Lauderick Creek, Removal	Dec 2003
RA(C)	EAJF00 J-Field Study Area	Apr 2004
RI/FS	AAOA03 Other Aberdeen Areas - Drainage Ditches	May 2004
RI/FS	AAOA07 Other Aberdeen Areas - Storage Areas	May 2004
RI/FS	AAOA10 Other Aberdeen Areas - Washracks	May 2004
RI/FS	EABR11-I Radioactive Material Disposal Facility	May 2004
RA(C)	EALC00 Lauderick Creek, Removal	May 2004
RI/FS	AAOA04 Other Aberdeen Areas - Spill Site Areas	Sept 2004
RA(C)	EACI00 Carroll Island Study Area, Institutional Controls	Sept 2004
RA(C)	EALC05-C Concrete Slab Dump Area 1 - Cluster 5, Waste Removal - Solids (Non-Soils)	Sept 2004
IRA	EAOE04 D-Field Aerial Spray Grid - Cluster 4, Removal	Sept 2004

PROJECTED MILESTONES

RA Construction Completion	2012
IRP Completion	2034

NO FURTHER ACTION SITES

The following sites currently require no further action under the ER,A program:

- AAOA03, AAOA04, AAOA05, AAOA06, AAOA07, AAOA10, AAOA11, AAOA13, AAOA14

- AAWB03, AAWP01, APGSC00, ABR03-C, EABR07-A, EABR07-B, EABR11-D, EABR11-E, EABR11-G, EABR11-H, EABR15-C, EABR18-A, EABR18-C, EABR18-D, EABR35-A, EABR35-B, EABR36-A, EABR36-B

- EACC1E, EACC1H-B, EACC1H-C, EACC1H-D, EACC1I-A, EACC1I-B, EACC1K, EACC1L-B, EACC2A, EACC2B, EACC2C, EACC2D, EACC2E, EACC2G, EACC2H-A, EACC2H-C, EACC2I-A, EACC2I-B, EACC3A, EACC3B, EACC3D, EACC3E, EACC3G, EACC3H, EACC3I, EACC3J, EACC3L, EACC3M-A, EACC3M-B, EACC3P, EACC6, EACC7

- EACI01-A, EACI01-B, EACI01-C, EACI01-D, EACI02-A, EACI02-B, EACI02-C, EACI03, EACI04-A, EACI04-B, EACI04-C, EACI04-D, EACI05-A, EACI05-B, EACI05-C, EACI05-D, EACI05-E, EACI06-A, EACI06-B, EACI06-C, EACI06-D, EACI06-E, EACI07-A, EACI07-B, EACI07-C, EACI08

- EAGQ01-A, EAGQ01-B, EAGQ01-C, EAGQ01-D, EAGQ01-E, EAGQ01-F, EAGQ01-G, EAGQ01-H, EAGQ01-I, EAGQ02-A, EAGQ02-B, EAGQ02-C, EAGQ03-A, EAGQ03-B, EAGQ03-C, EAGQ03-D, EAGQ03-E

- EAJF02, EAJF03, EAJF04, EAJF05, EAJF05-A, EAJF05-B, EAJF06, EAJF07, EAJF08, EAJF09, EAJF10, EAJF11, EAJF12, EAJF13, EAJF14

- EALC00, EALC05-A, EALC05-B, EALC05-D, EALC09-A, EALC09-B, EALC09-C, EALC09-D, EALC13-A,

- EALC13-B, EALC13-C, EALC17-A, EALC20, EALC32, EALC33

- EANS01-B, EANS01-C, EANS01-F, EANS01-G, EANS01-H, EANS01-I, EANS01-J, EANS01-K

- EAOE24, EAOE31, EAOE38, EAOE39, EAOE41, EAOE43, EAOE44, EAOE45, EAOE46, EAOE49

- EAPP00

- EAWW02-B, EAWW02-C, EAWW10-C, EAWW10-D, EAWW10-E, EAWW10-F, EAWW21-A, EAWW21-C

Aberdeen Proving Ground's IRP Schedule

(based on current funding constraints)

AEDB-R #	PHASE	FY05	FY06	FY07	FY08	FY09	FY10+
AAML01	RA(O)						
AAML02	LTM						
AAWB01	RA(O)						
	RA(O)						
AAWB02	RI/FS						
	RD						
	RA						
	LTM						
AAWB04	RI/FS						
	RD						
	RA						
AAOA01	RI/FS						
	RD						
	RA						
	LTM						
AAOA02	RI/FS						
	RD						
	RA						
	RA						
	RA						
	LTM						
AAOA08	RI/FS						
	RD						
	RA						
	LTM						
AAOA12	RI/FS						
	RD						
	RA						
EAOE04	RI/FS						
	RD						
	RA						
EAOE08	RD						
	RA						
EAOE12	RI/FS						
	RD						
	RD						
	RA						
	RA						
	RA(O)						
EAOE16	RI/FS						
	RD						
	RD						
	RD						
	RA						
	RA						
	RA						
	RA(O)						
	RA(O)						
	RA(O)						
	RA(O)						
EAOE19	RI/FS						
	RD						
	RD						

Aberdeen Proving Ground's IRP Schedule

(based on current funding constraints)

AEDB-R #	PHASE	FY05	FY06	FY07	FY08	FY09	FY10+
	RA						
	RA(O)						
	RA(O)						
EAOE22	RI/FS						
	RD						
	RD						
	RD						
	RA						
	RA						
	RA						
EAOE23	RI/FS						
	RD						
	RA						
EAOE24	RI/FS						
EAOE26	RI/FS						
	IRA						
	RD						
	RD						
	RD						
	RA						
	RA(O)						
	RA						
	RA						
	RA(O)						
	LTM						
EAOE27	RI/FS						
	RD						
	RD						
	RA						
	RA						
	RA(O)						
	RA(O)						
EAOE28	RI/FS						
	RD						
	RA						
EAOE29	RI/FS						
	IRA						
	RD						
	RD						
	RA						
	RA(O)						
EAOE30	RI/FS						
	LTM						
EAOE31	RI/FS						
EAOE37	RI/FS						
	RD						
	RA						
EAOE38	RI/FS						
EAOE39	RI/FS						
EAOE41	RI/FS						
EAOE42	RI/FS						
	IRA						
	RD						

Aberdeen Proving Ground's IRP Schedule

(based on current funding constraints)

AEDB-R #	PHASE	FY05	FY06	FY07	FY08	FY09	FY10+
	RA						
EAOE43	RI/FS						
EAOE44	RI/FS						
EAOE45	RI/FS						
EAOE46	RI/FS						
EAOE49	RI/FS						
EAOE50	RI/FS						
	RD						
	RA						
EAOE51	RI/FS						
	RD						
	RA						
EAOE52	RI/FS						
	RD						
	RA						
EAOE53	RI/FS						
	RD						
	RA						
EAOE54	RI/FS						
	RD						
	RA						
EABR03-A	LTM						
EABR03-B	RD						
	RA						
EABR11-A	RD						
	RA						
EABR11-B	RD						
	RA						
EABR11-C	RD						
	RA						
	LTM						
EABR11-F	RI/FS						
	RD						
	RA						
	RA(O)						
EABR11-I	RD						
	RA						
EABR15-A	RD						
	RA						
	LTM						
EABR15-B	RD						
	RA						
	LTM						
EABR15-D	RD						
	RA						
	RA(O)						
EABR18-E	LTM						
EABR18-F	RD						
	RA						
	RA(O)						
EALC05-C	LTM						
EALC09-F	RD						
	RA						
	LTM						

Aberdeen Proving Ground's IRP Schedule

(based on current funding constraints)

AEDB-R #	PHASE	FY05	FY06	FY07	FY08	FY09	FY10+
EALC13-D	RD						
	RA						
	RA(O)						
EANS01-A	RA(O)						
EANS01-D	LTM						
EACI00	LTM						
EAGQ00	LTM						
EAGQ02-D	RA						
	RA(O)						
EAJF00	LTM						
EAJF01	RI/FS						
	RD						
	RA						
	RA(O)						
EACC1A-A	RI/FS						
	RD						
	RA						
EACC1A-B	RI/FS						
	RD						
	RA						
EACC1D	RI/FS						
	RD						
	RA						
EACC1F-A	RD						
	RA						
EACC1F-B	RD						
	RA						
EACC1G-A	RD						
	RA						
EACC1G-B	RI/FS						
	RD						
	RA						
EACC1H-A	RD						
	RA						
EACC1H-E	LTM						
EACC1H-F	RD						
	RA						
EACC1H-G	RD						
	RA						
EACC1J	RD						
	RA						
EACC1K	RI/FS						
EACC2A	RI/FS						
EACC2F	RD						
	RA						
EACC2H-B	RD						
	RA						
EACC3C	RD						
	RA						
EACC3F	RA(O)						
EACC3K-A	RI/FS						
	RD						
	RA						
EACC3K-B	RD						

Aberdeen Proving Ground's IRP Schedule

(based on current funding constraints)

AEDB-R #	PHASE	FY05	FY06	FY07	FY08	FY09	FY10+
	RA						
EACC3L	RI/FS						
EACC3N	LTM						
EACC3O	RI/FS						
	LTM						
EACC4A	RA(O)						
	RA(O)						
EACC4A-B	RI/FS						
	RD						
	RA						
	RA(O)						
	RA(O)						
EACC5A	RI/FS						
	RD						
	RA						
EACC5B	RI/FS						
	RD						
	RA						
EAOF01	RD						
	RA						
	RA(O)						
EAOF02	RD						
	RA						
	RA(O)						
EAOF03	LTM						
EAOF04	RD						
	RA						
	RA(O)						
	RA(O)						
EAWW00	LTM						
EAWW02-A	RD						
	RA						
EAWW02-D	RD						
	RA						
EAWW02-E	RD						
	RA						
EAWW06	RD						
	RA						
EAWW10-A	RD						
	RA						
EAWW10-B	RD						
	RA						
EAWW14-B	RD						
	RA						
EAWW14-C	RD						
	RA						
EAWW21-B	RD						
	RA						
EAWW21-D	RD						
	RA						
EAWW21-E	RD						
	RA						

REM/IRA/RA Assessment

At the onset of APG's IRP, efforts were geared toward investigations and studies of the study areas. These numerous environmental investigations of the installation delineated the extent of contamination and contaminant migration pathways, resulting from the extensive and complex interaction of the chemical warfare agent and hazardous waste disposal practices with the environment since 1917. These investigations identified over 360 SWMUs.

Since 1990, APG's IRP efforts focused on the initiation of remedial and removal actions at the study areas in conjunction with ongoing environmental studies of the study areas. No further remedial action is planned for the White Phosphorus Underwater Munitions Disposal Site (AAWP01). No further remedial action with LTM is planned for Michaelsville Landfill OU2 (AAML02), Beach Point Test Site (EACC3N), and O-Field Watson Creek Sediment and Surface Water OU3 (EAOF03). Additional AOUs have been identified or will be identified at all the study areas, enabling remedial actions for certain portions of each study area to proceed prior to the final overall remedial action for each study area.

APG completed RI/FS planning stages at each study area, and initiated RIs in 1992 for eight of the study areas (Bush River (EABR03 through EABR36), Carroll Island (EACI00 through EACI08), Graces Quarters (EAGQ00 through EAGQ03), J-Field (EAJF00 through EAJF14), Lauderick Creek (EALC00 through EALC33), O-Field (EAOF01 through EAOF04), Other Edgewood Areas (EAOE04 through EAOE54), and the Western Boundary Area (AAWB01 through AAWB04)). RI/FS work at the Canal Creek (EACC1A through EACC7), Westwood (EAWW00 through EAWW21), and Michaelsville Landfill (AAML02) Study Areas began in 1993. In 1994, RI/FS work was initiated at the Other Aberdeen Areas (AAOA01 - AAOA14). Currently, the RI/FS process is underway at 112 AEDB-R sites.

In addition to the remedial actions above, 109 extensive removal actions at several of the study area SWMUs (not including the removal of 18 USTs) have been completed to date.

PAST REMOVALS

Bush River (EABR03 through EABR36)

- Removal and disposal of 15,000-gallon UST and PCB/pesticide contaminated soil at Building E1372 (EABR03-A), completed April 1991

- Removal of contaminated surface material, drums, and spilled material at Kings Creek Dump Site (EABR15-A), completed March 1993

- Radioactive Material Disposal Facility: Preliminary characterization assessment of contaminated sediments within sumps based on RFA findings and recommendations (EABR11-I), completed July 1993

- Old Bush River Road Dump: Fence Installation (EABR03-A), completed July 1996

- Adamsite Vault: Removal of contaminated water and sediments and decontamination, closure of vault (EABR11-H), completed September 1996

- Characterization and removal of gas cylinders and drums at the 26th Street Disposal Site (EABR11-B), completed January 1997K

- Removal of potentially contaminated surface material from the Bush River Area (EABR03-A,B; EABR07-A,B; EABR11-A,B,C,D,E,I; EABR15-A,B,C; EABR18-A,B,C,D,E; EABR35-A,B; EABR36-A,B), completed September 1997

- Final Remedial Design, Cluster 3 - Old Bush River Road Dump, Covering of dump (EABR03-A), initiated in November 1998

- Removal and disposal of mercury contaminated soil from Kings Creek Area (EABR15-A), completed May 1999

- Capping at EABR03-A completed in 2001

- Removal at EABR03-B completed in 2001

Canal Creek (EACC1A through EACC7)

- Removal and cleanup of toxic and hazardous materials at G-Street Salvage Yard (EACC1A-B), completed 1990

- Installation of fence around G-Street Salvage Yard (EACC1A-B), completed June 1991

- Removal and disposal of approximately 10 tons of PCB contaminated soil at Building E3580 drum rack (EACC3J), completed October 1991

- Removal and disposal of bromobenzyl cyanide liquid from vessel at former Building 103 Dump Site (EACC1H-E), completed February 1992

- Source definition, decontamination, and removal of five buildings associated with the former Wound Ballistics Program (EACC3D), completed March 1992

- Fence installation around former Building 103 Dump Site (EACC1H-E), completed June 1992

- Soil excavation at Building E3580 drainage swales (EACC3J), completed September 1992

- Removal of a 500-gallon above ground storage tank and four overpacked drums at the Beach Point Drum Rack (EACC3N), completed January 1993

- Toxic Disposal Pits: Delineation of extent of suspected former disposal pits and marking of locations with signs and stakes (EACC00), completed June 1994

- WWII Railroad UST Removal, (EACC1A-A), completed August 1994

- Building E3640 Sumps: 2 Separate removals of material from and closure of chemical wastewater sumps (EACC3L), completed March and December of 1995

- Building E5188 White Phosphorus Filling Plant Scrubber: Removal of caustic and water scrubber (EACC1G-B), completed August 1995

- Building 87 Complex Sumps: Removal and disposal of water and sludge from chemical wastewater sumps (EACC1E), completed September 1995

- Standby Well Closures: Evaluation of wells and borings posing potential pathway for contamination migration between groundwater aquifers and proper abandonment (EACC00), completed November 1995

- Experimental Plants Dumps: Soil sampling to determine the extent of contamination and excavation and disposal of contaminated soil and surface material (EACC1H-F), completed December 1995

- Interim Remedial Design, Former Building 103 Dump Site OU1, Installation of cap over dump (EACC1H-E), completed September 1996

- Interim Remedial Design, Building 503 Smoke Mixture Burn Sites Operable Unit, Soil fixation of burn sites and excavation to EACC1H-E (EACC1L-A), completed September 1996

- G Street Salvage Yard, Temporary Soil Cover Installation, (EACC1A-B), completed December 1996

- Design renovation of Building E1942 for relocation of U.S. TEU from demolished Bldg. E5422, completed 1998

- Construction renovation of Bldg. E1942 for relocation of U.S. TEU from demolished Building E5422, completed 1998

- Interim Remedial Action, Building 503 Smoke Mixture Burn Sites OU, Excavate soil from Burn Sites and transport to Building 103 Dump Site (EACC1L-A), completed February 1998

- Interim Remedial Action, Former Building 103 Dump Site OU1, Installation of cap over dump (EACC1H-E), initiated May 1997 and completed in September 1999

- Interim Remedial Design, Canal Creek Groundwater Treatment Plant, renovation/rehabilitation of Bldg. E5236 Treatment - Plant and installation of groundwater extraction wells , 30% Design, completed November 1999

- Removal at EACC6 completed in 2002

- Waste removal at EACC6 completed in 2002

- Groundwater treatment at EACC4A complted in 2003

Carroll Island (EACI00 through EACI08)

- Shoreline stabilization and cleanup of contaminated surface material in water and on surface at Lower Island Disposal Site (EACI08), completed May 1993

- Wind Tunnel: Decontamination/disassembling and disposal of wind tunnel and associated equipment (EACI06-A), completed September 1993

- Carroll Island Overall: Fence and warning sign repairs (EACI00), completed August 1994

- Wind Tunnel: Removal of 1 UST, (EACI06-C), completed August 1995

- Remedial Design, OUA - Disposal Sites (EACI01-A,C; EACI02-A,C; EACI03; EACI04-B,C,D; EACI05-D,E; EACI06-B; EACI08), Excavation of Disposal Pits, completed September 1997

- Service Area Septic System/Sump: Abandon-in-place (EACI02-A), completed in FY99

- Remedial Action, OUA – Disposal Sites (EACI01-A,C; EACI02-A,C; EACI03; EACI04-B,C,D; EACI05-D,E; EACI06-B; EACI08), Excavation of Disposal Pits, completed December 1999

- Institutional controls at EACI00 completed in 2002

Graces Quarters (EAGQ00 through EAGQ03)

- Cleanup of contaminated surface material and excavation of disposal pits at the Graces Quarter Disposal Area (EAGQ01-A), completed April 1994

- Graces Quarters Overall: Installation of fence and warning signs (EAGQ00), completed April 1994

- Test Site Perimeter Dumps: Removal of contaminated surface material (EAGQ01-H,I; EAGQ02-A,B,C; EAGQ03-A,B,D), completed February 1995

- Service Area: Removal of 2 USTs and contaminated soil (EAGQ03-E), completed July 1995

- Secondary Test Area: Removal of contaminated surface material (EAGQ01-I), completed March 1998

- IRA at EAGQ00 completed in 2002

J-Field (EAJF00 through EAJF14)

- Preliminary characterization assessment of contaminated soil at burning pits for future excavation based on RFA findings and recommendations, implementation of shoreline erosion controls at the White Phosphorus Pits, Riot Control Chemical Burning Trench, and removal and disposal of four drums from the Prototype Building (EAJF00), completed March 1995

- Final Remedial Design, Excavation of J-Field Toxic Burn Pits Soil OU (EAJF05, 05-A), completed April 1998

- Final Remedial Design, Shoreline Stabilization at J-Field Toxic Burn Pits (EAJF05, 05-A), completed September 1998

- Final Remedial Action, Shoreline Stabilization at J-Field Toxic Burn Pits (EAJF05, 05-A), completed February 1999

- Capping at EAJF05 and 05-A completed in 2001

- capping at EAJF05-B completed in 2002

- IRA at EAJF00 completed in 2004

Lauderick Creek (EALC00 through EALC33)

- Cluster 9: Removal of 2 USTs (EALC09-C), completed September 1994, Non-DERA funds

- Fence installation around Lauderick Creek area (EALC00), completed December 1994

- Removal of contaminated surface material at School Fields I-III (EALC13-A,B & EALC20), completed January 1995

- Concrete Blast Slab Drum Site #1 & #2: Cleanup of contaminated surface material and drums and removal of contaminated soil (EALC05-C), completed February 1995

- Removal of potentially contaminated surface material from Lauderick Creek Area (EALC00), completed November 1996

- School Field Training Area I: Removal of 1 UST, (EALC13-C), completed November 1996

- Nike East Woods Site, Site 6: Removal of 1 UST, (EALC05-A), completed July 1997

- Removal at EALC00 completed in 2003 and 2004

- Removal at EALC05-C completed in 2004

- Waste removal at EALC09-B completed in 2004

Michaelsville Landfill (AAML01/AAML02)

- Remedial Design/Action phase for installation of new cap and cover system for Michaelsville Landfill OU1 (AAML01), completed August 1994

Nike Site (EANS00 through EANS01)

- Nike Site: Removal of 2 USTs (EANS01-F,G), completed April 1991 and September 1994, Non-DERA funds

- Removal of silo water and removal/decontamination of equipment and material in the six Nike Missile Silos (EANS00), completed April 1994

- Cluster 1 - School Field IV: Cleanup of contaminated surface material and drums (EANS01-K); Southwest Launch Landfill: Cleanup of contaminated surface material and drums (EANS01-D); Nike Barracks Discharge Pipe: Removal of contaminated sewer system (EANS01-H), completed May 1995

- Remedial Design, Cluster 1 (EANS01-C), Abandonment of sanitary sewer system line, completed June 1997

- Remedial Action, Cluster 1 (EANS01-C), Abandonment of sanitary sewer system line, completed November 1997

- Remedial Design, Cluster 1 (EANS01-D), Design cap for the Southwest Landfill, completed December 1997

- Remedial Action, Cluster 1 (EANS01-D), Installation of cap over Southwest Landfill, completed August 1998

- Remedial Design, Cluster 1 (EANS01-A), Cleanup/treatment of groundwater, completed February 1999

O-Field (EAOF01 through EAOF04)

- Remedial Action, Old O-Field Groundwater OU1 (EAOF01), Installation of a groundwater extraction and treatment facility, completed construction April 1995

- Interim Remedial Action, Old O-Field Source OU2 (EAOF02), Installation of Permeable Infiltration Unit over Old O-Field Landfill, completed August 1998

Other Aberdeen Areas (AAOA01 through AAOA14)

- Other Aberdeen Areas Overall: Removal of 14 USTs (AAOA08), completed 1990-1994, non-DERA funds

- Removal of 25 buried 55-gallon drums at CSTA Drum Site (AAOA13), completed May 1990

- Removal and disposal of approximately 1.5 million pounds of pesticide contaminated soil at the Pesticide Storage and Mixing Facility, Building 5010 (AAOA04), completed September 1991

- Removal and disposal of approximately 380 tons of DDT contaminated soil from Building A-450 (AAOA04), completed December 1991

- Removal and disposal of approximately 346 tons of DDT contaminated soil at Building 5262, Backyard Storage Yard (AAOA07), completed May 1992

- Fence installation around Old Dump at Swan Creek (AAOA01), completed December 1993

- Transonic Range: Preliminary characterization assessment of contaminated sediments in wastewater ditch (AAOA12), completed June 1994

- CSTA Fragmentation Pit (Near Bldg. 705B): Preliminary characterization assessment of contaminated soil (AAOA02), completed June 1994

- DRMO Scrap Metal Yard: Removal and disposal of heavy metal and PCB contaminated soil (AAOA02), completed August 1994

- Preliminary characterization assessment of contaminated soil at the Wastewater Ditch at Shell Washout Facility (700B) (AAOA03) based on RFA findings and recommendations, completed September 1994

- Sandblasting Area Near Building 523: Removal and disposal of heavy metal contaminated soil (AAOA07), completed November 1994

- Spent Lead-Acid Battery Storage Site: Removal and disposal of heavy metal contaminated soil (AAOA07), completed November 1994

- Abbey Point Munitions Burial Area: Preliminary characterization assessment of CWM contamination in sediments and surface water (AAOA02), completed December 1994

- Removal of chlordane contaminated soil underneath Building 331 (AAOA04), completed May 1996

- Removal of spent batteries from Spesutie Island and Abbey Point (AAOA02), completed August 1996

Other Edgewood Areas (EAOE04 through EAOE54)

- Cleanup and removal of approximately 80 deteriorating 55-gallon drums and contaminated surface material at the G-Field Drum Disposal Site (EAOE08), completed November 1992

- Preliminary characterization assessment of contaminated soil at G-Field X-Ray Machine Site (EAOE08) based on RFA findings and recommendations, completed October 1994

- Fort Hoyle Drum Site: Removal of empty and corroded drums (EAOE19), completed August 1994

- M-Field Prototype Building Burning Trench: Preliminary characterization assessment of contaminated surface material and soil based on RFA findings and recommendations (EAOE16), completed February 1995

- M-Field Southeast Burning Trench: Preliminary characterization assessment of contaminated surface material and soil based on RFA findings and recommendations (EAOE24), completed February 1995

- C-Field Wastewater System: Closure of contaminated wastewater systems associated with Buildings E1400/E1401 and E1407/E1415 (EAOE39), completed June 1995

- H-Field Septic Field: Contaminated septic system closure (EAOE12), completed October 1995

- Rod & Gun Club Dump, Soil characterization and cleanup of contaminated surface material and drums (EAOE19), completed March 1997

- Fort Hoyle: Remove contaminated gas masks and surface sweep to remove contaminated material and drums (EAOE19), completed March 1997

- Removal at EAOE04 completed in 2002 and 2004

Western Boundary Area (AAWB01 through AAWB03)

- Construction and operation of TCE Treatment System for wells 5 and 6 at the Harford County Perryman Well Field (AAWB01), completed June 1993

- Removal and disposal of 12,500 tons of TCE and TPH contaminated soil and water at the Fire Training Area (AAWB03), completed June 1994

Shoreline Cleanup (APGSC00)

- APG Shorelines: Cleanup of contaminated surface material along APG shorelines (APGSC00), two actions completed in August of 1994 and 1995

- Carbon Adsorption at AAWB01 completed in 2003

Westwood (EAWW00 through EAWW21)

- WWI Chlorine Plant Dump Site: Soil sampling to determine the extent of contamination and excavation and disposal of contaminated soil and surface material (EAWW21-E), completed December 1995

- Removal of contaminated surface material and drums from the Stokes Road East Drum Site (EAWW14-C), completed May 1996

- Radiological Material Disposal Facility: Waste characterization of soil, excavation and disposal of contaminated soil and material from septic system (EAWW06), completed March 1998

Michaelsville Landfill (AAML01/AAML02)

- Installation and operation of leachate collection system at Michaelsville Landfill (AAML01), completed June 1991

FUTURE REM/IRA/RAs

IRA at EAOE26, 29, 42

RA at AAWB02, 04, AAOA01, 02, 08, 12, EAOE04, 08, 12, 16, 19, 22, 23, 26, 27, 28, 29, 37, 42, 50, 51, 52, 53, 54, EABR03-B, 11-A, 11-B, 11-C, 11-F, 11-I, 15-A, 15-B, 15-D, 18-F, EALC09-F, 13-D, EAGQ02-D, EAJF01, EACC1A-A, 1A-B, 1D, 1F-A, 1F-B, 1G-A, 1G-B, 1H-A, 1H-F, 1H-G, 1J, 2F, 2H-B, 3C, 3K-A, 3K-B, 4A-B, 5A, 5B, EACF01, 02, 04, EAWW02-A, 02-D, 02-E, 06, 10-A, 10-B, 14-B, 14-C, 21-B, 21-D, 21-E

Community Involement

On May 17, 2003, Aberdeen Proving Ground shared the Fiscal Year 2003 Obligation Plan with the Restoration Advisory Board (RAB) and the State of Maryland Department of the Environment (MDE). Upon final approval of the APG IRP Installation Action Plan, the document was distributed to the RAB members for their information. Information contained the FY04 IAP, including the FY04 Obligation Plan, is being shared with the RAB and MDE representatives at RAB meetings during 2004, with information relevant to each study area discussed following a detailed update presented at the monthly meeting. This distribution is consistent with APG's ongoing interactive and proactive relationship with local stakeholders, including citizens, regulators, and elected officials, to promote involvement in the IRP. Through various aspects of a mature community relations program, APG continues to reinforce the desire and need for stakeholder participation early in the restoration process. APG's program involves community members in initial project meetings through to formal public comment periods. APG's RAB continues to meet on a monthly basis with sub-committee or topical interim meetings as needed. Tours are held several times a year to allow Board members to see close-up progress and issues at restoration sites. APG also continues to disseminate information to the general public through a variety of methods including direct mails, news releases, Information Line, Web Site, fact sheets, information repositories, public notices, and displays at community events.

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